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Statistical Analysis of TxCAP and its Subsystems

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Statistical Analysis of TxCAP and its Subsystems

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Dedication

Dedicated to the memory of my father who passed away recently whose constant perseverance has been a source of inspiration for me.

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Abstract

Statistical Analysis of TxCAP and its Subsystems

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The Texas Department of Transportation (TxDOT) uses the Texas Condition Assessment Program (TxCAP) to measure and compare the overall road maintenance conditions among its 25 districts. TxCAP combines data from three existing subsystems: the Pavement Management Information System (PMIS), which scores the condition of pavement; the Texas Maintenance Assessment Program (TxMAP), which evaluates roadside conditions; and the Texas Traffic Assessment Program (TxTAP), which evaluates the condition of signs, work zones, railroad crossings, and other traffic elements to get an overall picture of the condition of state roads. As a result, TxCAP provides a more comprehensive assessment of the interstate and non-interstate highways. However, the scores for each of the subsystems are based on data of different sample sizes, accuracy, and levels of variations, making it difficult to decide if the difference between two TxCAP score is a true difference or measurement error. Therefore, whether the use of TxCAP is an effective and consistent means to measure the TxDOT roadway maintenance conditions raises concerns and needs to be evaluated. In order to achieve this objective, statistical analyses of the system were conducted in two ways: 1) to

determine whether sufficient samples are collected for each of the subsystems, and 2) to determine if the scores are statistically different from each other. A case study was conducted with a dataset covering the whole state from 2008 to 2010. The case study results show that the difference in scores between two districts are statistically significant for some of the districts and insignificant for some other districts. It is therefore recommended that TxDOT either compare the 25 districts by groups/tiers or increase the sample size of the data being collected to compare the districts as individual ones.

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Chapter 1: Introduction

1.1 BACKGROUND

Transportation engineers face increasing challenges every day to ensure that the transportation infrastructure is maintained at its highest possible level with limited funds. In order to address this challenge, engineers need to develop monitoring programs that can be used to evaluate the maintenance process and needs in terms of performance and cost. A few highway agencies have developed systems to collect and analyze the condition of the highway infrastructure through inventory. Such systems can be broadly categorized as Maintenance Quality Assurance (MQA) programs for in-house maintenance [Gharaibeh et. al. 2010]. These systems also allow the agencies to utilize the benefits of Performance-Based Maintenance Contracts (PBMC) [Gharaibeh et. al. 2010, de la Garza 2008]. The highway system performance not only depends on the individual performance of pavements and bridges but also on the combined interactive "function" of the pavement component, traffic component (mainly traffic control devices), and roadside component. Each of these components or subsystems functions differently and has different maintenance requirements. To be able to evaluate the overall performance of the network, highway agencies need a system to comprehensively plan, measure, and manage the highway system. Such an assessment program/system must be able to organize infrastructure inventory, assess conditions, set minimum acceptable condition levels, and establish condition targets [NCHRP 608]. Over the past few years, the Texas Department of Transportation (TxDOT) has introduced a combination of systems that allows TxDOT to achieve this objective.

Texas has the largest state-maintained highway system in the United States with over 195,000 highway lane-miles [Peddibhotla 2010, TxDOT 1994]. The highway

system can be broadly classified into three distinct parts, the pavement system, the roadside system, and the traffic control system. TxDOT uses Texas Condition Assessment Program (TxCAP) and its three subsystems to measure and compare the overall road maintenance conditions among all 25 TxDOT Districts. The three subsystems include the Pavement Management Information System (PMIS), which scores the condition of pavement; the Texas Maintenance Assessment Program (TxMAP), which evaluates many roadside conditions; and the Texas Traffic Assessment Program (TxTAP), which evaluates the condition of traffic control devices and other traffic elements [TxDOT 2009]. TxCAP combines information from PMIS, TxMAP, and TxTAP to get an overall picture of the condition of state roads. TxCAP and its subsystems should not only provide TxDOT officials a tool to evaluate the maintenance needs of the roadway network and the implications of different performance goals using the performance-based budget selection process, but also offer a means to clearly communicate to its key customers, including the public, the impact of policy and budget decisions on program service delivery.

1.2 THESIS OBJECTIVE

TxCAP provides a comprehensive assessment of the Interstate and Non-Interstate highway system. However, the scores for each of the subsystems are based on data of different sample sizes, accuracy, and levels of variations. This raises concerns whether the use of TxCAP is an effective and consistent means to measure the TxDOT roadway maintenance and needs to be evaluated. One of the concerns is to decide whether the difference between the scores of two districts is a true difference or a measurement error. In order to determine if the difference between any two scores is a true difference

(statistically significant), statistical analyses of TxCAP and the data used to develop the TxCAP scores, i.e., each of the subsystems, have to be conducted.

The main objective of this research is to conduct a statistical analysis on TxCAP and its subsystems. This research objective can be detailed as follows:

1) to determine if enough data is provided in the sample size and the patterns revealed through analysis of the data collected;
2) to determine the current level of statistical significance of the current TxCAP system by analyzing the current sample size and level of statistical significance of the subsystems (PMIS, TxMAP and TxTAP); and
3) to provide the recommended sample size of the TxCAP system including the subsystems with reasonable estimates of the likely levels of variance in the data from pre-existing data.

1.3 THESIS ORGANIZATION

This thesis is organized into five chapters. Chapter 1 presents the background, objective and organization of the thesis. Chapter 2 provides a review of the TxCAP system, its origin, and purpose. Chapter 3 discusses the methodology for carrying out the statistical analysis. Chapter 4 discusses the case study with existing data from TxDOT. Chapter 5 provides the results of the study. Finally, Chapter 6 provides the conclusions of this research.

Chapter 2: Literature Review

2.1 TxCAP and Its Subsystems

In order to maintain the asset items at a desirable level or standard, road administrators need to design a performance monitoring process. In fiscal year 2007, the Texas Department of Transportation began revising the process by which the Department assesses the condition of the state's Interstate and Non-interstate highways. The process, which is known as the Texas Condition Assessment Program (TxCAP), combines data from the Pavement Management Information System (PMIS), the Texas Maintenance Assessment Program (TxMAP), and the Texas Traffic Assessment Program (TxTAP). As a result, TxCAP provides a more comprehensive assessment of the Interstate and Non-Interstate highway system [TxDOT 2009].

PMIS is an automated system for storing, retrieving, analyzing, and reporting pavement condition information such as distress, ride quality, deflection, and skid resistance data. It can be used to retrieve and analyze pavement information to compare maintenance and rehabilitation treatment alternatives, monitor current pavement condition and estimate total pavement needs. The annual PMIS survey currently consists of three separate surveys: visual evaluation, ride quality, and skid resistance.

TxMAP evaluates the overall condition for the Interstate and Non-Interstate highway systems. Under TxMAP a visual inspection of 23 elements of the highway system is carried out in three different areas: pavement, roadsides, and traffic operations for each 1-mile segment (in one direction). The entire evaluation procedure requires only two full-time employees who perform the evaluations with assistance from district personnel. TxMAP inspections evaluate ten percent of the interstate highway and five percent of all other highways in the state system.

TxTAP is a tool used by the department to evaluate the uniformity, quality, and consistency of traffic control devices on the state highway system. TxTAP evaluates traffic control devices across the state such as signs, work zones, railroad crossings, and other traffic elements. Evaluating every traffic control device is not feasible in terms of available resources, therefore, TxTAP scores are based on a relatively small sample of all traffic control devices. TxDOT Traffic Operations Division conducts the annual evaluation in each of TxDOT's 25 field districts. Each district review consists of 20–30 randomly selected segments of the state highway system, 5–16 signalized intersections, 3–4 work zones, and 2–6 railroad crossings.

The development of TxCAP eliminates duplication of the three separate scoring systems and provides a simplified and concise scoring system. The ratings and descriptions of the numerical grading system are based on a five point system. The five-point system then is converted to a 100 point system by multiplying each rating by 20 [CTR 2010]. The resulting score is then weighted to determine the overall score for each subsystem. Each subsystem's overall score is then weighted according to appropriate TxCAP value to obtain a total composite score for the entire roadway system [PBS&J 2009].

One of the most important areas in the performance monitoring process is inspections conducted in the field. Field inspections need to be carefully planned and monitored in order to ensure that the data collected is representative of the population being studied. The Virginia DOT developed their Maintenance Quality Evaluation (MQE) program to provide an evaluation of Virginia's Interstate, primary and secondary highway systems. The MQE qualitatively assesses the level of maintenance for flexible and rigid pavements, stabilized roadways, roadway shoulders, drainage, traffic control and safety, roadside and structures. One of the objectives of the MQE was to develop a

formal process for assuring consistent levels of service statewide. Under this program, all 45 sub-elements (characteristics) of the eight major maintenance elements had to be inspected. To create a feasible and valid representation of the entire roadway system, the MQE researchers adopted a random sampling procedure from Florida DOT that evaluates each of the three highway systems separately. Initially, a pilot sample of each system was carried out to determine a representative "failure rate," from 50 randomly selected sites. "Failure rate" was defined as the percentage of sites that did not meet the desired level of service according to the Maintenance Condition Standards. These standards were developed separately by experienced highway engineers as part of this program. Using the failure rate, an estimate of centerline miles, a desired 95 percent confidence level, and a chosen precision rate of 4 percent, the sample size for the each highway system was obtained using the formula,

$$n = \frac{Z^2 \times N \times p(1-p)}{(A^2 \times N) + (Z^2 \times p(1-p))}$$

This formula would provide the sample size that would be needed for a specific confidence level and a specific precision rate to arrive at a statistical conclusion of center-lane mileage for that particular highway system. The sampling section size was arbitrarily set to 0.1-mile of roadway. Each sample site was manually inspected by a team of two individuals. The team recorded if the actual condition met the desired standard or not. The MQE development process also included a validation process done by surveying 200 sample sites conducted by a task force team of six highly experienced maintenance field managers. The task force was also asked to assign weights to each of the characteristics. "What if" analyses were conducted on the survey results from the validation process to determine an overall numerical value for the site, which would show whether the roadway section was within maintenance policy. The task force determined that the

maintenance level of service should be 80 on the Interstate and Primary system and 75 on the Secondary highway system [Kardian and Woodward 1990].

Researchers at Virginia Polytechnic Institute and State University have also developed a statistical sampling process [de la Garza et al 2008]. In this study, the authors developed a three-stage, seven-step sampling procedure that discusses the characteristics of performance-based, road maintenance evaluations, namely, the issues pertaining to population, sample units, and performance targets. The authors stratified the population by urban and rural settings. Sample units have been defined as equal sections along the roadway to be randomly selected and observed. The authors also considered the effect of asset items within each sample unit. For example, a 0.1-mile road segment is a sample unit but it might contain assets like ditches, shoulder, pipes that other samples may not contain. Thus, all sample units are not the same as they do not contain the same assets. The sampling mechanism used in this study is called "sampling proportional to size." This study considers a binary population scenario in which the measurement can take only values 0 or 1. A binary population is considered because an asset item within a sample unit either meets the performance criteria or not. The sampling procedure works well for a binary population where the individual asset items are not scored on a scale. This sampling process may not be applicable in the case of maintenance evaluations where each item is scored on a scale.

Many statistical methods are available for determining the sample size, such as the Bootstrap method, the Assume Normal-Pool Variance method, the Noether method, and the Risk-based method. Zhang et al. have conducted a detailed study on the determining the sample size and the factors that affect it with respect to the testing of construction materials used by TxDOT [Zhang 2001]. The materials analyzed in this study belong to the following areas: asphalt concrete, concrete for pavements, concrete

for structures, subbase and base courses, and treated subbase and base courses. This study selected the Risk-based method for determining the optimal sample size as it is most commonly used and for its effectiveness and ease of understanding. In this method, the risk is determined by the probability of making a hypothesis testing error, i.e., both Type I and Type II error, and tolerable error [Zhang 2001, AASHTO 1996]. The study derives and establishes the formula to determine the sample size in relation to hypothesis testing. It also discusses the relationship between the sample size and the other parameters involved. The required sample size depends on the following parameters: 1) variability of the characteristic being measured, 2) the risk that a state DOT is willing to take, 3) the risk that a contractor is willing to take, and 4) the margin of error that the involved parties are willing to accept. This study also includes some discussion on the cost of testing and on the trade-off between material testing costs and sample size, particularly cost due to failure. A detailed sensitivity analysis was also conducted to demonstrate the sensitivity of the sample size to each of the parameters. The study found that the adequate sample size obtained can be related to a level of risk for both parties involved. In this study the probability of making Type I error (α) was defined as the contractor's risk and the probability of making a Type II error (β) was defined as owner's/agency's risk. The analysis revealed that the sample size increases as the standard deviation of the property of the material being tested increases, and decreases as the tolerable error increases. The sample size also increases as the contractor's risk (α) and agency's risk (β) are lowered. The study further compares the current sample size used by TxDOT and determines how the risk of accepting poor materials by TxDOT can be defined. This process can be adopted and used to define the "risk" of making an incorrect judgment/conclusion for a hypothesis. Finally, the authors discuss the process of implementing the lessons learned and the possible areas of implementation [Zhang 2001].

Chapter 3: Methodology

3.1 Determination Of Sample Size

It is a generally recognized statistical rule that the accuracy of the estimated mean value of a population increases as the number of samples taken from the population increases [Zhang 2001]. One of the most important factors that affects the accuracy of the mean is the error that may occur due to insufficient sampling. This section discusses the methodology used to determine the minimum sample size and the factors that affect it. The sample size largely depends on the two errors associated with hypothesis testing. First, the two types of errors are defined. This is followed by the derivation of the formula for the minimum sample size. The methodology used for sample size calculation in this study was adopted from Zhang 2001, Devore 2004 and Walpole et. al. 2011.

3.1.1 Type I Error

The Type I error is the most commonly considered error in hypothesis testing. This error, usually denoted as α, is the probability of rejecting a null hypothesis when it is actually true. In other words, it is the error of observing a difference when in truth there is none, thus indicating a test of poor specificity. A Type I error can be viewed as the error of excessive credulity.

3.1.2 Type II Error

The second error that may occur during hypothesis testing is the Type II error. Type II error, usually denoted as β, is the probability of failing to reject a null hypothesis when it is in fact not true. In other words, this is the error of failing to observe a difference when in truth there is a difference, thus indicating a test of poor sensitivity. Type II error can be viewed as the error of excessive skepticism.

In order to help avoid making a Type II error, statisticians have introduced the concept of power. The power of a statistical test, denoted as $(1-\beta)$, is the probability that the test will reject the null hypothesis when the alternative hypothesis is true, i.e., the probability of not making a Type II error. Thus, the chance of making a Type II error decreases as the power increases.

3.1.3 Required Sample Size for Hypothesis Tests

A common problem facing statisticians is calculating the sample size required to yield a certain power for a test, for a predetermined Type I error (α). This error (α) is also known as producer's risk. A typical example for this is as follows:

Let $X_i,\ i = 1, 2, \ldots, n$ be independent observations taken from a normal distribution with unknown mean μ and known variance σ^2. For some smallest significant difference, $e > 0$, the following two hypotheses are constructed, a null hypothesis:

$$H_0: \mu = 0 \qquad (3.1)$$

and an alternative hypothesis:

$$H_a: \mu \geq e \qquad (3.2)$$

The smallest significant difference, e, is the smallest value recorded as a difference. In other words, if the difference between the two mean values is smaller than e then the two values are taken to be the same. Now, in order to (1) reject H_0 with a probability of at least $(1-\beta)$ when H_a is true, i.e., a power of $(1-\beta)$, and (2) reject H_0 with probability α when H_0 is true, α can be expressed as follows:

If z_α is the upper α percentage point of the standard normal distribution, then α can be expressed as

$$P\left(\bar{x} > \frac{z_\alpha\, \sigma}{\sqrt{n}} | H_0 \text{ true}\right) = \alpha \qquad (3.3)$$

and so reject H_0 if the sample average $\bar{x}$ is more than $z_\alpha \sigma/\sqrt{n}$, which is a decision rule that satisfies criteria (2). It should be noted that this is a one-tailed test.

In order to satisfy criteria (1) when H_a is true, the following relationship is required

$$P\left(\bar{x} > \frac{z_\alpha\, \sigma}{\sqrt{n}} | H_a \text{ true}\right) \geq 1 - \beta \qquad (3.4)$$

Through careful manipulation, it can be shown that this occurs when

$$n \geq \left(\frac{\Phi^{-1}(1-\beta) + z_\alpha}{\frac{\mu^*}{\sigma}} \right)^2 \qquad (3.5)$$

where Φ is the normal cumulative distribution function. Generally, two approaches can be adopted to calculate the sample size using the results above. The approaches are :

- control the Type I error only
- control both the Type I and Type II errors.

3.1.4 Controlling Type I Error

When only the Type I error is of concern, the following three steps should be carried out to calculate the desired sample size.

1) Specify the Tolerable Error

The engineer must determine the level of precision needed. The desired precision is often expressed by probability in absolute terms, as

$$P\left(|\bar{y} - \bar{y}_\mu| \leq e\right) = 1 - \alpha \qquad (3.6)$$

where:

$\bar{y}$ = Sample mean

$\bar{y}_{\mu}$ = Population mean

α = Type I error

e = Tolerable error or margin of error.

The engineer must select a reasonable value for α and e. To achieve the desired relative precision, the precision may be expressed as

$$P\left(\left|\frac{\bar{y}-\bar{y}_{\mu}}{\bar{y}_{\mu}}\right| \leq e\right) = 1-\alpha \qquad (3.7)$$

2) Find an Equation Relating the Sample Size, *n*

The simplest equation relating the precision and sample size comes from the confidence interval. To obtain absolute precision, the value of n must satisfy

$$e = \frac{Z_{\alpha/2}\sigma}{\sqrt{n}} \qquad (3.8)$$

Solving for n,

$$n = \frac{\left(Z_{\alpha/2}\right)^2 \sigma^2}{e^2} \qquad (3.9)$$

where:

n = Sample size

$Z_{\alpha/2}$ = The $\left(1-\alpha/2\right)^{th}$ percentile of the standard normal distribution

σ = Standard deviation

e = Tolerable error.

3) Adjust the Sample Size, *n*

The equations presented before, Equation (3.1) to Equation (3.9), are based on asymptotic theory (as the sample size goes to infinity). In the case under consideration

the sample size is finite and therefore, the sample size n should be adjusted for a sample size, n, that is not infinite. The adjusted sample size is given by Equation (3.10).

$$n_\alpha = \frac{n}{1 + n/N} \qquad (3.10)$$

where:

n = Adjusted sample size

n = The sample size which ignores the finite population correction (FPC)

N = Population size.

3.1.5 Controlling both Type I Error and Type II Error

When both the Type I and Type II error are concerned, the following steps should be taken to obtain the sample size.

1) Calculating Type II Error Probability.

Calculation of β can be very difficult for some statistical tests, but the Z test can be used to demonstrate both the calculation of β and the logic employed in selecting the sample size for a test.

For the test of $H_0: \mu = \mu_0$ against $H_a: \mu < \mu_0$, it is only possible to calculate Type II error probabilities for any given specific point in H_a. Suppose $\mu = \mu_0 - e$, then the power of this test can be expressed as:

$$1 - \beta = P(\bar{X} < a, \text{when } \mu = \mu_0 - e) \qquad (3.11)$$

The probability of a Type II error, β, is

$$\beta = P(\bar{X} > a, \text{when } \mu_a = \mu_0 - e) \qquad (3.12)$$

$$\beta = P\left(\frac{\bar{X} - (\mu_0 - e)}{\sigma/\sqrt{n}} > \frac{\bar{a} - (\mu_0 - e)}{\sigma/\sqrt{n}}, \quad \text{when } \mu_a = \mu_0 - e\right) \qquad (3.13)$$

In this equation $\frac{\bar{X}-(\mu_0-e)}{\sigma/\sqrt{n}} = Z$ and therefore, μ_a has an approximately standard normal distribution and the probability β can be determined by finding an area under a standard normal curve.

2) Find an Equation Relating the Sample Size, *n* .

Suppose the test is $H_0: \mu = \mu_0$ against $H_a: \mu < \mu_0$. If the desired values of α and β are specified, the sample size for controlling both Type I error and Type II error can be expressed as

$$n = \frac{(Z_\alpha + Z_\beta)^2 \sigma^2}{e^2} \qquad (3.14)$$

where:

n = Sample size

α = Type I error

β = Type II error

Z_α = The $(1-\alpha)^{th}$ percentile of the standard normal distribution

Z_β = The $(1-\beta)^{th}$ percentile of the standard normal distribution

σ = Standard deviation

e = Tolerable error

It should be noted that Equation (3.14) gives the sample size for a one-tailed test.

3.1.6 Sample Size of each Subsystem given α, β, and e

From earlier discussions, it is observed that the sample size is a function of the Type I error (α), the Type II error (β), the tolerable error (e), and the standard deviation (σ). In fact in Equation (3.14) the Type I and Type II error are incorporated as the

confidence level $(1-\alpha)$ and statistical power $(1-\beta)$ respectively. The confidence level and power are used to determine Z_α and Z_β respectively. This indicates that the lower the Type I error, the higher will be the confidence level. Similarly, the smaller the Type II error, the greater will be the statistical power. From Equation (3.14) it can be observed that the higher the confidence level desired, the larger is the required sample size. For a fixed value of α and holding other parameters constant, the smaller the Type II error (greater power), the larger is the required sample size. The required sample size, n is proportional to the variance (σ^2). Thus for samples with large variability a larger sample size is required to obtain a result keeping other parameters fixed. The required sample size (*n*), is inversely proportional to the square of tolerable error (*e*), i.e., if the allowable error is to be kept small a large sample size is needed and increases in the order of the square of *e*.

3.2 COMPARISON OF MEAN VALUES

In this section, the methodology for comparing performance scores across two districts or across two time periods is discussed. This comparison will determine whether the scores are significantly different from each other. The *t*–test will be used to compare the mean scores of TxCAP, and its subsystems: TxTAP, TxMAP, and PMIS. The results of the *t*-test can be utilized in two ways. The comparisons can be made either at a specific level of confidence to obtain the hypothesis results or the level of confidence can be determined at which the two scores are significantly different from each other.

3.2.1 Using *t*-test

The TxCAP score is a weighted average of the scores of its three components. The TxCAP score for each district is calculated from its components' scores using the following formula:

$$\text{TxCAP} = (0.5 \times \text{PMIS}) + (0.25 \times \text{TxMAP}) + (0.25 \times \text{TxTAP}) \quad (3.15)$$

The PMIS, TxMAP, and TxTAP scores are calculated for each of the randomly selected survey sections within a district. Equation (3.15) is used to calculate the corresponding TxCAP score for each of the surveyed sections. The average of the section scores gives the average score for that district. The average scores of all the districts for the 3 years in the analysis period are provided in Appendix A.

The standard deviation of the mean TxCAP score is then calculated using the following formula:

$$s_{\text{TxCAP}} = \sqrt{(0.5^2 \times s^2_{\text{PMIS}}) + (0.25^2 \times s^2_{\text{TxMAP}}) + (0.25^2 \times s^2_{\text{TxTAP}})} \quad (3.16)$$

where:

s^2_{PMIS} = The variance of the PMIS scores

s^2_{TxMAP} = The variance of the TxMAP scores

s^2_{TxTAP}= The variance of the TxTAP scores.

In this study two sample comparisons were conducted. The scores for two districts are compared using the *t*-test. The test used in this study assumes that the two population variances are different and the sample sizes are also expected to be different. The *t*-statistic, for samples of different sizes and variance, can be calculated as follows:

$$t = \frac{\overline{X_1} - \overline{X_2}}{s_{\overline{X_1} - \overline{X_2}}} \quad (3.17)$$

where:

$\overline{X_1}$ = The mean TxCAP score of district 1;

$\overline{X_2}$ = The mean TxCAP score of district 2 and

$$s_{\overline{X_1}-\overline{X_2}} = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}} \qquad (3.18)$$

where:

$s_{\overline{X_1}-\overline{X_2}}$ = Combined Standard deviation

s^2= Unbiased estimator of the variance of each of the two samples

n = Sample size.

The corresponding degrees of freedom (D.F.) are calculated using:

$$D.F. = \frac{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)^2}{\left[\left(\frac{s_1^2}{n_1}\right)^2 \Big/ (n_1 - 1)\right] + \left[\left(\frac{s_2^2}{n_2}\right)^2 \Big/ n_2 - 1\right]} \qquad (3.19)$$

Equation (3.20), (3.21), and (3.22) form the basis of the statistical tests to determine which pairs of district scores are significantly different from each other. Some details of the procedure followed are mentioned in the next chapter.

Chapter 4: Case Study with TxDOT Data

4.1 Data Description

In order to evaluate the effectiveness and consistency of the current TxCAP system, a case study was carried out using a dataset containing data from all 25 districts spanning a period of 3 years: 2008, 2009, and 2010. The dataset consisted of scores of the elements under each of the three subsystems as well as the calculated PMIS, TxTAP, and TxMAP scores for each surveyed section within each district. The elements under each of the subsystems are detailed in Figure 1 [PBS&J 2009, CTR 2010]. The TxCAP score for each section was calculated using Equation (3.15). The respective district scores were obtained by averaging the scores of the sections surveyed in that year. The average of the scores for all districts gave the mean score for the state.

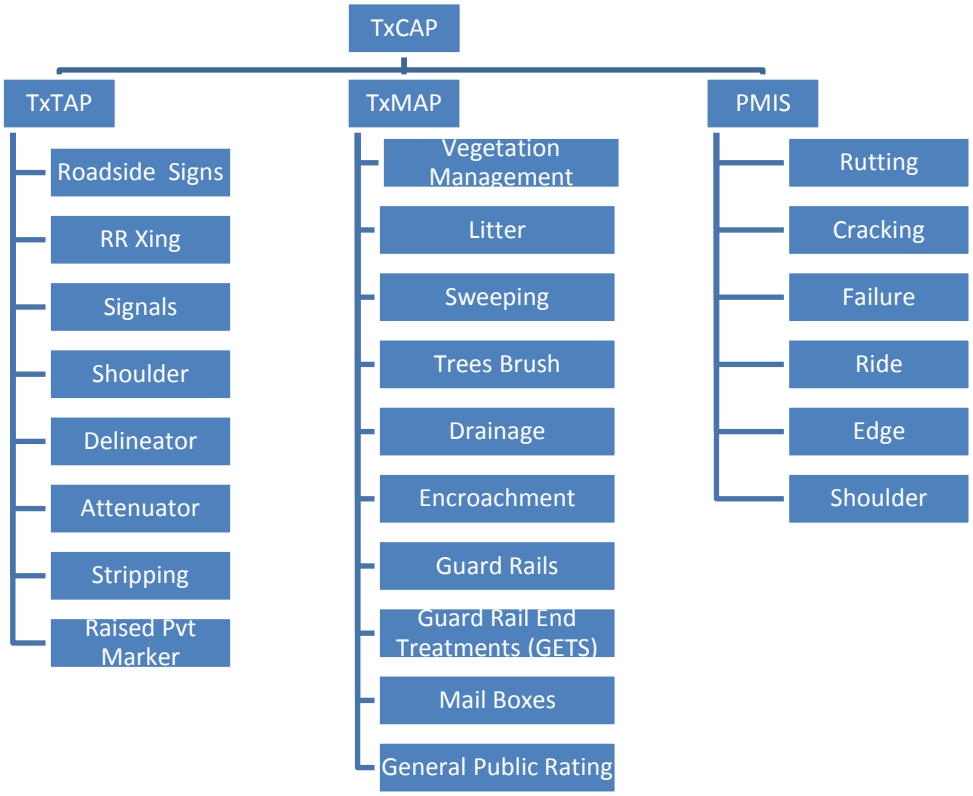

Figure 1: Elements of the subsystems in TxCAP

In order to obtain a preliminary idea about the sample data, the mean and the standard deviation of each sample (district) were calculated. An over view of the entire state over the 3 years is presented in this section. The mean and the standard deviation of the subsystem scores, for the entire state over the 3 years are shown in Table 1. A more detailed summary of the scores, for the period under consideration, is provided in Tables 20 through 23 in Appendix A. A list of the districts ranked by each score is presented in Table 24. This table gives a qualitative idea about the performance of the districts relative to each other and the relative changes in performance over the 3 years under consideration.

Table 1: Overview of case study data

	PMIS		TxTAP		TxMAP		TxCAP	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
2008	77.80	11.111	79.48	12.243	81.24	9.004	79.13	8.869
2009	74.75	9.176	78.55	10.202	78.92	7.189	76.76	7.189
2010	76.52	8.874	80.10	10.170	79.93	6.844	78.26	6.908
Combined	76.34	9.838	79.37	10.919	80.02	7.763	77.86	7.981

4.2 Sample Size Calculation For Each Sub-System Score

Hypothesis testing and decision errors are crucial concepts in determining sample size. When testing hypotheses, there are two possible sources of errors, namely, Type I error and Type II error. In many instances, only Type I error is considered. The probability of a Type I error is denoted by α and is also known as the level of significance. This case study aims to control both Type I and Type II errors when determining the required sample size.

4.2.1 Sample Size when Type I and Type II Error are Controlled

A risk-based statistical approach was used with the aim of conducting tests to achieve a certain standard of quality. The theoretical discussion and derivation of the formula have been presented in the previous chapter. In this chapter the objective is to identify significant differences. In other words, a two-tailed test needs to be conducted. Since both Type I and Type II errors should be controlled when determining the required sample size, the minimum sample size (considering a two-tailed test) was calculated using the following formula:

$$n = \frac{\left(Z_{\alpha/2} + Z_{\beta}\right)^2 \sigma^2}{e^2} \qquad (4.20)$$

where:

n = Sample size of subsystem

α = Type I error

β = Type II error

$Z_{\alpha/2}$ = The $(1 - \alpha/2)^{th}$ percentile of the standard normal distribution

Z_{β} = The $(1 - \beta)^{th}$ percentile of the standard normal distribution

σ^2 = Variance of subsystem scores

e = Tolerable error.

Based on the formula it is evident that α, β, e and σ^2 affect the sample size. The variance, σ^2, is estimated from the inventory data currently available. The sample sizes were calculated for different combinations of α, β and e. Different sample sizes have correspondingly different risk levels [Zhang 2001]. The risk level includes the α risk, β risk and the risk associated with e. Table 2 shows a portion of the sample size calculations as an example. Table 2 presents the sample size calculation for PMIS for different combinations of α and β for e = 0.5 only. Similar tables were created for each

value of *e* chosen for PMIS. The complete set of tables, covering the different combinations of the parameters for the three subsystems, is provided in Tables 25 Table 25through 27 in Appendix C.

Table 2: Sample size for PMIS for $e = 0.5$

			Sample Sizes			
Conf. Level, (1-α)%	**β =**		**0.01**	**0.05**	**0.1**	**0.2**
99	μ =	76.34	8380	6105	5039	3885
97	σ =	9.838	6852	4812	3871	2869
95	e =	0.5	6105	4190	3315	2393
90			5039	3315	2543	1745

4.2.3 Determination of Tolerable Error, *e*

The tolerable error is defined as the maximum difference the decision-maker is willing to conclude that two comparing scores are the same. Different values of the tolerable error have been mentioned in literature and are determined, in most cases, from experience or by expert judgment. This study also attempted to determine a suitable estimate of the tolerable error from the data available. Since no standards were available for the maximum difference at which the decision-maker is willing to conclude that the scores are same, an attempt was made to determine distribution of the differences between the scores. A histogram of the differences between the mean scores was developed for each subsystem. The histograms showing the distributions of these differences are presented in Figure 5, Figure 6, and Figure 7 in Appendix B. The figures also show the mean value of the differences between the scores for each of the subsystems. The mean of the differences was used to obtain a reasonable estimate of the tolerable error (*e*). Based on these mean values, suitable values of the tolerable error were selected to calculate the required sample size. Table 3 summarizes the information

presented in the histograms, i.e., the mean value of the differences, and also lists the tolerable error values used in the study. The calculation of the tolerable errors was based on 3 years combined data.

Table 3: Estimated values of tolerable error

Subsystem	Mean value of absolute differences	Tolerable errors (*e*) used for calculation
TxTAP	3.61	0.5, 1 and 2
TxMAP	2.92	0.5, 1 and 2
PMIS	3.61	0.5, 1 and 2

4.3 COMPARISON OF SCORES

This section discusses the comparison of the performance scores to determine a statistically significant difference. The discussion includes the test assumptions, hypothesis, and the steps carried out. The *t*-test was conducted in a similar manner for each of the scores. Two approaches were used in analyzing the results. In the first approach, the comparison/hypothesis test was carried out for a predetermined level of confidence. In the second approach, the current level of confidence was calculated which will be discussed later.

4.3.1 Assumptions for the *t* – test

The scores for TxCAP and its subsystems are mean values calculated for each district for a particular year. The *t* – test can be used for comparing means of two samples from the same population as well as for samples from two different populations. In this study, each district was considered as a separate population with a different size and different variance. This is recognized from the values of the variance of the district scores which are mentioned in Table 20, Table 21, and Table 22 in Appendix A. Considerable

variation exists in the variances of the scores among the districts and, therefore, it is not reasonable to consider all the districts as one population with uniform variance.

4.3.2 Hypothesis for the *t* – test

The following null hypothesis has been constructed to determine whether the difference between the scores for any two districts is a true difference. The null hypothesis was defined such that the mean scores of any two districts are equal. In notation form, the null hypothesis for TxCAP can be stated as follows:

$$H_0: \bar{X}_{TxCAP,1} = \bar{X}_{TxCAP,2} \quad (4.23)$$

and the alternative hypothesis as

$$H_a: \bar{X}_{TxCAP,1} \neq \bar{X}_{TxCAP,2} \quad (4.24)$$

where:

$\bar{X}_{TxCAP,1}$ = is the mean TxCAP score for district 1

$\bar{X}_{TxCAP,2}$ = is the mean TxCAP score for district 2

Another equivalent representation of the hypothesis is as follows:

$$H_0: \left|\bar{X}_{TxCAP,1} - \bar{X}_{TxCAP,2}\right| = e \quad (4.25)$$

and the alternative hypothesis as

$$H_a: \left|\bar{X}_{TxCAP,1} - \bar{X}_{TxCAP,2}\right| > e \quad (4.26)$$

where:

e =Tolerable error.

The two possible outputs of the hypothesis test are either "reject H_0" or "fail to reject H_0." If the test results reject the null hypothesis then it can concluded that the scores are statistically different and there exists a true difference between the scores. If the *t*-test results fail to reject the null hypothesis, then it can be concluded that the scores are not statistically different. In such a case, the scores of the two districts may be the same or appear different due to variability in measurement (measurement error). The same null and alternate hypothesis was followed in the comparison of the PMIS, TxTAP and TxMAP scores.

4.3.2 Obtaining results from the *t* – test

The first step in conducting the *t*-test was creating a 25×25 matrix of the score differences. A sample of this matrix is shown in Table 28 in Appendix D. This is a symmetric matrix and either the upper triangle or lower triangle can be used for inference. In the next step the combined standard deviation was determined for each of the 300 combinations of district-pairs from the variance of the score and the sample size of the corresponding districts using Equation (3.18), an example of which is shown in Table 29. Using the matrix of differences and the combined standard deviation, the *t*-statistics are computed and compared with the critical *t*-statistics for a particular significance level. In the first part of the study a 5 percent significance level or 95 percent level of confidence was chosen in accordance with common practice. A *t*-statistic greater than the critical *t*-statistic indicated that the null hypothesis can be rejected indicating that the mean scores of the two districts are significantly different. Table 4 shows a sample of the results of a two-tailed *t*-test at a 95 percent level of confidence for the TxCAP scores for 2010. The results of the *t*-test on all four systems for the four time periods of study are presented in the tables in Appendix E.

Table 4: *t*-test results for TxCAP for 2010 at 95 percent level of confidence

District		WFS	ABL	FTW	HOU	PAR	DAL	CHS	WAC	PHR	BWD	TYL	LBB	AUS	LRD	YKM	AMA	ATL	LFK	CRP	SJT	SAT	BRY	ODA	ELP	BMT
	Mean	74.08	75.76	76.05	76.05	76.08	76.11	76.52	76.89	77.43	77.99	78.25	78.45	78.46	78.47	79.04	79.13	79.30	79.38	79.45	79.61	79.89	80.40	81.30	81.59	82.25
WFS	74.08		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	75.76	Yes		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	76.05	Yes	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	76.05	Yes	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	76.08	Yes	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	76.11	Yes	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CHS	76.52	Yes	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	76.89	Yes	No	No	No	No	No	No		No	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	77.43	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BWD	77.99	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	78.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
LBB	78.45	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
AUS	78.46	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
LRD	78.47	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
YKM	79.04	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
AMA	79.13	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes
ATL	79.30	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes
LFK	79.38	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes
CRP	79.45	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes
SJT	79.61	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	Yes	Yes	Yes
SAT	79.89	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	Yes	Yes	Yes
BRY	80.40	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	Yes
ODA	81.30	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No
ELP	81.59	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No
BMT	82.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	

More information can be derived from these responses by clustering the "No" responses together into groups as shown in Table 4. In order to obtain this, the districts must be sorted by the mean scores. In this study the districts were arranged in ascending order. The "No" responses can be clustered in multiple ways and no unique method for forming the groups was found. In this study, the groups were made as large as possible to keep the number of groups at a minimum. The results are discussed in more detail in the next chapter.

4.4 Determination Of Level Of Confidence

The method of comparison described in the previous section is limiting in the manner that the inferences can be made for a chosen level of confidence. The following approach relaxes this limitation. Using the *t*-statistic an attempt was made to determine the probability that the two samples are likely to come from the same two underlying

populations. This method has the flexibility of choosing any level of confidence for comparing the district scores, which eliminates the need to compare the *t*-statistics to different critical *t*-values corresponding to different levels of confidence. Table 5 shows the level of confidence at which the mean TxCAP scores are significantly different for the year 2010. In Table 5, the cells highlighted correspond to an 80 percent level of confidence. A more detailed discussion of the Level of Confidence tables is presented in the next chapter.

Table 5: Level of confidence for TxCAP scores for 2010

		WFS	ABL	FTW	HOU	PAR	DAL	CHS	WAC	PHR	BWD	TYL	LBB	AUS	LRD	YKM	AMA	ATL	LFK	CRP	SJT	SAT	BRY	ODA	ELP	BMT
	Mean	**74.08**	**75.76**	**76.05**	**76.05**	**76.08**	**76.11**	**76.52**	**76.89**	**77.43**	**77.99**	**78.25**	**78.45**	**78.46**	**78.47**	**79.04**	**79.13**	**79.30**	**79.38**	**79.45**	**79.61**	**79.89**	**80.40**	**81.30**	**81.59**	**82.25**
WFS	**74.08**	0%	99%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ABL	**75.76**	99%	0%	33%	32%	38%	37%	76%	91%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**76.05**	99%	33%	0%	0%	4%	6%	48%	74%	88%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	**76.05**	99%	32%	0%	0%	4%	6%	47%	72%	87%	99%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**76.08**	99%	38%	4%	4%	0%	3%	46%	73%	87%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	**76.11**	99%	37%	6%	6%	3%	0%	39%	66%	83%	98%	99%	100%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CHS	**76.52**	100%	76%	48%	47%	46%	39%	0%	40%	71%	97%	98%	100%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WAC	**76.89**	100%	91%	74%	72%	73%	66%	40%	0%	45%	88%	93%	98%	94%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	**77.43**	100%	95%	88%	87%	87%	83%	71%	45%	0%	49%	64%	78%	72%	73%	93%	95%	96%	97%	98%	99%	100%	100%	100%	100%	100%
BWD	**77.99**	100%	100%	99%	99%	99%	98%	97%	88%	49%	0%	29%	54%	45%	47%	87%	91%	93%	95%	96%	98%	100%	100%	100%	100%	100%
TYL	**78.25**	100%	100%	100%	99%	100%	99%	98%	93%	64%	29%	0%	23%	20%	21%	71%	77%	83%	86%	88%	94%	98%	100%	100%	100%	100%
LBB	**78.45**	100%	100%	100%	100%	100%	100%	100%	98%	78%	54%	23%	0%	1%	2%	63%	71%	78%	83%	86%	93%	98%	100%	100%	100%	100%
AUS	**78.46**	100%	100%	100%	99%	100%	99%	98%	94%	72%	45%	20%	1%	0%	1%	52%	59%	68%	73%	76%	85%	94%	98%	100%	100%	100%
LRD	**78.47**	100%	100%	100%	100%	100%	99%	99%	95%	73%	47%	21%	2%	1%	0%	52%	60%	69%	74%	77%	86%	94%	99%	100%	100%	100%
YKM	**79.04**	100%	100%	100%	100%	100%	100%	100%	100%	93%	87%	71%	63%	52%	52%	0%	10%	27%	35%	42%	58%	79%	94%	100%	100%	100%
AMA	**79.13**	100%	100%	100%	100%	100%	100%	100%	100%	95%	91%	77%	71%	59%	60%	10%	0%	18%	27%	34%	52%	75%	93%	100%	100%	100%
ATL	**79.30**	100%	100%	100%	100%	100%	100%	100%	100%	96%	93%	83%	78%	68%	69%	27%	18%	0%	9%	16%	34%	61%	87%	100%	99%	100%
LFK	**79.38**	100%	100%	100%	100%	100%	100%	100%	100%	97%	95%	86%	83%	73%	74%	35%	27%	9%	0%	7%	25%	54%	84%	99%	99%	100%
CRP	**79.45**	100%	100%	100%	100%	100%	100%	100%	100%	98%	96%	88%	86%	76%	77%	42%	34%	16%	7%	0%	18%	48%	81%	99%	99%	100%
SJT	**79.61**	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	94%	93%	85%	86%	58%	52%	34%	25%	18%	0%	34%	76%	99%	99%	100%
SAT	**79.89**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	94%	94%	79%	75%	61%	54%	48%	34%	0%	57%	98%	97%	99%
BRY	**80.40**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	99%	94%	93%	87%	84%	81%	76%	57%	0%	83%	85%	96%
ODA	**81.30**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	98%	83%	0%	29%	72%
ELP	**81.59**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	97%	85%	29%	0%	49%
BMT	**82.25**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	96%	72%	49%	0%

Chapter 5: Results

5.1 Sample Size Of Each Of The Subsystems

The sample size depends on different parameters and a different risk level is associated with each sample size. The risk level includes/combines the α risk, β risk and the risk associated with e. A total of four different values (0.01, 0.05, 0.1 and 0.2) were selected for both α and β and three different values of tolerable error (0.5, 1.0, and 2.0). The sample sizes were calculated for each of these combinations of α, β and e. The variations of the minimum sample size, for different parameters, of the subsystems PMIS, TxTAP, and TxMAP are presented, in Table 25, Table 26 and Table 27 respectively in Appendix C. These tables show the number of sample points that should be collected for each district each year to ensure the estimation accuracy at the specific risk level. In common practice, α and β are selected to be 0.05 and 0.05 respectively. Table 6 presents the recommended sample sizes for these configurations and Table 7 compares the recommendations with the current level of data collection over the past 3 years. It can be concluded that there are some districts where more samples need to be collected to ensure the same risk level for all subsystems. Based on Equation (3.14) and the standard deviation values in Table 1, TxTAP is expected to require the largest number of samples and TxMAP the least to ensure estimation accuracy at the same risk level. This expectation is verified by the results in Table 6. For the purpose of establishing a valid TxCAP, data for all three subsystems is required for all pavement sections under consideration (being sampled). Therefore it is recommended that the number of data samples collected should match the largest minimum sample size (of the three subsystems) for a chosen risk level. Although PMIS data is collected for all state highways, insufficient data is collected for TxMAP and TxTAP [Zhang and Machemehl 2004].

Minimum sample sizes for all three subsystems with the combination of $\alpha = 0.05, \beta = 0.05, e = 2$ are obtained and shown as an example. Figure 2 illustrates the results. According to Figure 2, the largest minimum sample size is required for TxTAP and is 323 samples per district. In other words, in order to establish a valid TxCAP and compare the scores at this chosen risk level, 323 data points are required for all subsystems. Figure 2 clearly indicates where and how much sampling improvements are required. In addition, this figure can be utilized to compare the current sampling practice to any desired risk level.

Table 6: Comparison of current and required sample sizes

	2008			2009			2010			Sample size for $\alpha = \beta = 0.05$		
	Min	Max	Avg.	Min	Max	Avg.	Min	Max	Avg.	$e = 2$	$e = 1$	e = 0.5
PMIS	99	260	154	99	258	160	103	257	157	262	1047	4190
TxTAP										323	1290	5161
TxMAP										163	652	2609

Table 7: Number of districts meeting sample collection criteria

	Sample size for $\alpha = \beta = 0.05$ $e = 2$	Number of districts meeting this criteria		
		2008	2009	2010
PMIS	262	0	0	0
TxTAP	323	0	0	0
TxMAP	163	10	11	13

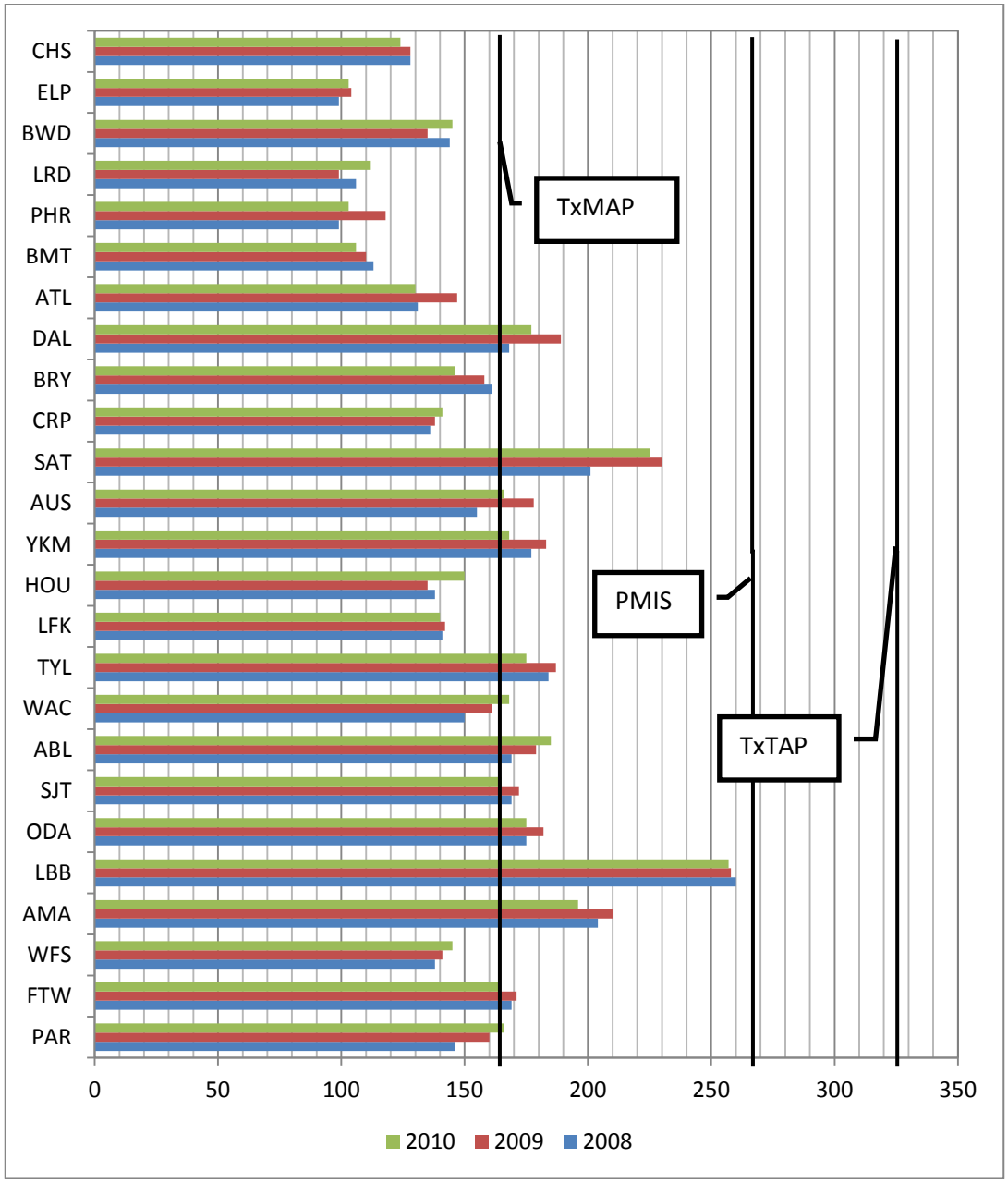

Figure 2: Current Sample collection practice and recommended sample size

5.2 POSSIBLE APPROACHES FOR INCREASING SAMPLE SIZE

TxDOT will incur additional costs by increasing the number of samples collected. To avoid significant increase in cost a number of possibilities are mentioned. This section discusses three different ways in which the sample sizes may be increased and the implications of these methods.

5.2.1 Increasing sample size by using ½-mile segments instead of 1-mile segments

The advantage of using ½-mile segments in lieu of the current 1-mile segments depends on the location and selection of the segments. Collecting data from ½-mile segments instead of the current practice of 1-mile segments means that each of the previous samples will be divided into two samples. This procedure will not be helpful because the samples are no longer random samples. The sampling process does not remain random because the location of every second sample is dependent on the location of the first (previous one). This can be further illustrated by considering the hypothetical network in Figure 3 and Figure 4. In Figure 3 the red "marks" represent a randomly selected sample where each sample is a 1-mile section. In Figure 4, each of the samples of Figure 3 is divided into ½ -mile sections. The first sample (indicated by "a") will be considered randomly chosen but the second sample (indicated by "b") is dependent on the position of the first as it is half of a 1-mile section and therefore the sampling process no longer remains random. In other words, although this process doubles the sample size, the statistical significance of the data does not increase because the data is being collected from the same location twice. However, if all the ½-mile sections are randomly selected then the statistical significance of the data would be increased. In this case, the number of samples would be doubled compared to the current practice and the data would have greater statistical significance.

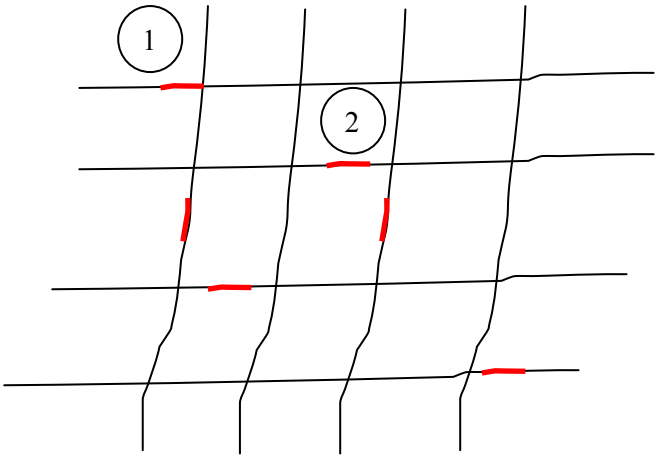

Figure 3: Illustration of Random Sample

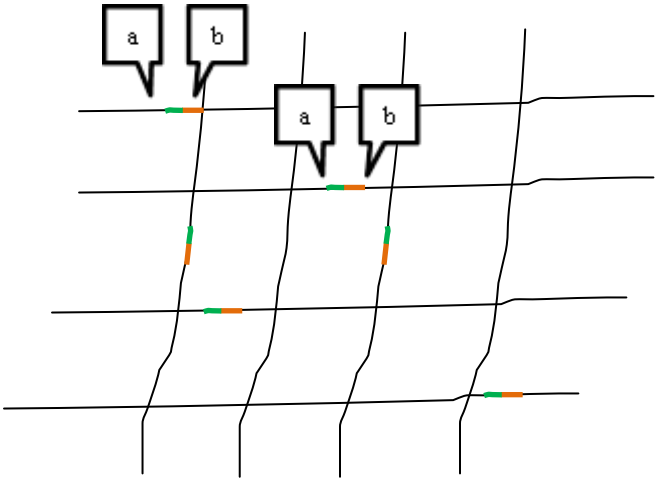

Figure 4: Illustration of Non-random Sample

5.2.2 Increasing the sample size to 10 percent of the population for TxMAP

Under this recommendation it is suggested that 10% or 16,000 ½-mile sections be used as a sample. If 10% of the population is selected for sampling then the sample size is 16,000 for the entire state. Therefore the number of data points needed for each district is 640 each year. The current average sample size of TxMAP collected in each district is 157. The effect of increasing sample size from 157 to 640 can be explained by Table 27 which shows the required annual TxMAP sample size for each district. If α and β are set to 0.05 (or 5%), which is commonly used in practice, the difference between sample sizes of 157 and 640 lies in the improvement of tolerable error (e). With a sample size of 157 data points, inferences can be made for $e = 2$ whereas with 640 data points inferences can be made at $e = 1$. In other words, TxMAP score differences greater than 1 will be considered significantly different. Therefore, increasing sample size from 157 to 640 will enable decision-makers to compare TxMAP scores more precisely between different districts.

5.2.3 Average 2 years of samples (current year plus previous year)

In this proposition the sample size is being increased by combining the 2 years of data to make a larger sample. The advantage of using 2 years of data together depends on whether

- different districts are compared for the same time periods vs. different time periods are compared for the same district, and
- on the location of the data collected each year.

Comparison among different districts is one of the primary intentions of this research and will be discussed first. If different districts are being compared and the location of data collected (survey sites) are fixed (data is collected from the same site in

both years), then using 2 years of data is not beneficial because the same data (from each location) is being repeated. Although the sample size doubles, this does not increase the statistical significance of the calculations. However if the survey sites are random each year, then combining two years of data will lead to a larger sample which will help "lower" the risk level. This can be illustrated by considering the following example. The number of samples for each subsystem must match the largest minimum sample size in order to develop a valid TxCAP system. Table 7 shows that TxTAP requires the largest sample size. Currently, the average annual sample size is 157 per district (for year 2010) corresponding to a risk level of $\alpha = 0.1, \beta = 0.2$ and $e = 2$ according to Table 26. Combining 2 years of data (2009 and 2010, for example) will increase the average sample size to 318 per district. This sample size corresponds to a risk level of $\alpha = 0.05, \beta = 0.05$ and $e = 2$. There is a significant reduction in the probability of making both Type I and Type II errors although the tolerable error remains the same.

In order to make the analysis valid, comparisons must be conducted for time periods in blocks of 2 years. It must be ensured that there is no overlap in the time periods. This can be illustrated by considering samples from three time periods A, B and C. The sample "A" consists of year 2008 and 2009, "B" consists of years 2010 and 2011, and "C" consists of years 2009 and 2010. Comparison of sample "A" against sample "B" will yield significant results whereas comparison between sample "A" and sample "C" is not meaningful as the data for 2009 is being repeated in both samples. This remains valid irrespective of which subsystem is being considered.

On the other hand, when conducting analysis across time (years), the location is not significant. This comparison will indicate the performance of the infrastructure across time for that particular district and can also be used to check effects of improvements.

5.3 RESULTS OF *T*-TEST

Pair wise comparison of the mean TxCAP, PMIS, TxTAP, and TxMAP scores of the 25 districts were carried out using the *t*-test to determine which districts were statistically different. The results of the *t*-test are presented in the following tables. The tables in this section show the TxCAP, PMIS, TxTAP, and TxMAP comparison results only for the year 2010. The results of the analysis for 2008, 2009, and the 3 years combined (2008-2010) are presented in tabular form in Appendix E.

The results of the t-test for the null hypothesis (the scores of the two districts are equal) are shown in the following tables. A two-tailed test was carried out at a 95 percent level of confidence. The matrices show the comparison of each district with all other 24 districts. The output matrix is symmetric and either upper triangular or lower triangular matrix can be used. The matrix lists two possible responses: "Yes" and "No." The outcome "Yes" indicates that the difference between the scores is statistically significant and an outcome of "No" indicates that the difference is not statistically significant. The diagonal elements of the matrix have been left blank as they represent comparison of the district with itself. The districts have been sorted in ascending order by score so that similar responses can be clustered. After arranging the districts in ascending order, it is observed that the "No" responses are "grouped" along the diagonal. The "No" outcomes can be clustered into groups as shown in the Table 8. A "No" output indicates that there is no difference between the two district scores, therefore, a group of "No" responses indicates that the scores of all districts within that group are not statistically different. In other words, within one group no true difference exists between the districts. Such groups can be named "Statistically Similar Performance Districts." Tables 8 through 11 show the t-test results at a 95 percent level of confidence for the year 2010 and

Table 12 presents the corresponding groups of districts with similar condition for the year 2010. Tables 13 through 15 present the corresponding groups of districts with similar condition for the remaining analysis periods.

Table 8: Results of *t*-test for TxCAP for 2010 by groups

District		WFS	ABL	FTW	HOU	PAR	DAL	CHS	WAC	PHR	BWD	TYL	LBB	AUS	LRD	YKM	AMA	ATL	LFK	CRP	SJT	SAT	BRY	ODA	ELP	BMT
	Mean	74.08	75.76	76.05	76.05	76.08	76.11	76.52	76.89	77.43	77.99	78.25	78.45	78.46	78.47	79.04	79.13	79.30	79.38	79.45	79.61	79.89	80.40	81.30	81.59	82.25
WFS	74.08		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	75.76	Yes		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	76.05	Yes	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	76.05	Yes	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	76.08	Yes	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	76.11	Yes	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CHS	76.52	Yes	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	76.89	Yes	No	No	No	No	No	No		No	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	77.43	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BWD	77.99	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	78.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
LBB	78.45	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
AUS	78.46	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
LRD	78.47	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
YKM	79.04	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
AMA	79.13	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes
ATL	79.30	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes
LFK	79.38	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes
CRP	79.45	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes
SJT	79.61	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	Yes	Yes	Yes
SAT	79.89	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	Yes	Yes	Yes
BRY	80.40	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	Yes
ODA	81.30	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No
ELP	81.59	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No
BMT	82.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	

Table 9: Results of *t*-test for PMIS for 2010 by groups

District		WFS	DAL	FTW	WAC	BWD	ABL	TYL	HOU	PAR	LRD	AUS	AMA	LBB	ATL	YKM	CHS	SAT	PHR	CRP	SJT	BRY	LFK	ODA	ELP	BMT
	Mean	71.96	72.65	73.50	73.66	74.03	74.34	74.63	74.91	74.99	75.21	75.97	76.55	76.83	77.01	77.10	77.31	77.91	78.01	78.16	78.23	78.41	78.94	81.34	82.60	83.52
WFS	71.96		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	72.65	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	73.50	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	73.66	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BWD	74.03	Yes	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	74.34	Yes	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	74.63	Yes	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	74.91	Yes	Yes	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	74.99	Yes	Yes	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LRD	75.21	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	75.97	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AMA	76.55	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
LBB	76.83	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
ATL	77.01	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes
YKM	77.10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
CHS	77.31	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes
SAT	77.91	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes
PHR	78.01	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes
CRP	78.16	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes
SJT	78.23	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	Yes	Yes	Yes
BRY	78.41	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	Yes	Yes	Yes
LFK	78.94	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		Yes	Yes	Yes
ODA	81.34	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		No	No
ELP	82.60	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No
BMT	83.52	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	

Table 10: Results of *t*-test for TxTAP for 2010 by groups

District		CHS	WFS	HOU	PHR	ABL	PAR	FTW	LBB	CRP	AMA	ELP	DAL	AUS	LRD	BMT	WAC	YKM	SJT	ATL	LFK	ODA	BRY	BWD	SAT	TYL
	Mean	71.06	74.88	75.53	76.17	76.49	76.57	78.96	79.00	79.35	80.14	80.21	80.38	81.03	81.18	81.43	81.85	81.85	82.11	82.12	82.19	82.65	82.86	82.93	83.77	84.27
CHS	71.06		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	74.88	Yes		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	75.53	Yes	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	76.17	Yes	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	76.49	Yes	No	No	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	76.57	Yes	No	No	No	No		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	78.96	Yes	Yes	Yes	Yes	Yes	Yes		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LBB	79.00	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	79.35	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AMA	80.14	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
ELP	80.21	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes
DAL	80.38	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
AUS	81.03	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No		No	No	No	No	No	No	No	No	No	No	Yes	Yes
LRD	81.18	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes
BMT	81.43	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes
WAC	81.85	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes
YKM	81.85	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes
SJT	82.11	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes
ATL	82.12	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	No	No	No	Yes
LFK	82.19	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No		No	No	No	No	Yes
ODA	82.65	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No		No	No	No	No
BRY	82.86	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No		No	No	No
BWD	82.93	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No		No	No
SAT	83.77	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No
TYL	84.27	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	

Table 11: Results of *t*-test for TxMAP for 2010 by groups

District		WFS	PHR	PAR	ABL	LFK	HOU	FTW	CHS	WAC	DAL	SJT	TYL	ODA	YKM	SAT	BMT	LBB	ELP	AUS	ATL	BWD	CRP	BRY	LRD	AMA
	Mean	77.06	77.30	77.58	77.63	78.24	78.30	78.35	78.83	78.96	79.04	80.26	80.28	80.33	80.41	80.61	80.66	80.80	80.83	80.91	81.23	81.29	81.67	82.09	82.11	82.77
WFS	77.06		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	77.30	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	77.58	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	77.63	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LFK	78.24	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	78.30	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	78.35	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CHS	78.83	Yes	No	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	78.96	Yes	No	No	Yes	No	No	No	No		No	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	79.04	Yes	No	No	Yes	No	No	No	No	No		No	No	No	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SJT	80.26	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
TYL	80.28	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
ODA	80.33	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
YKM	80.41	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes
SAT	80.61	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
BMT	80.66	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes
LBB	80.80	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	Yes	No	Yes
ELP	80.83	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes
AUS	80.91	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	Yes
ATL	81.23	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	No	No	Yes
BWD	81.29	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No		No	No	No	Yes
CRP	81.67	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No		No	No	No
BRY	82.09	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No		No	No
LRD	82.11	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No
AMA	82.77	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	

Table 12: Groups of statistically similar performance districts at 95 percent level of confidence for 2010

	TxCAP	**PMIS**	**TxTAP**	**TxMAP**
Group 1	WFS	WFS, DAL, FTW, WAC	CHS	WFS, PHR, PAR, ABL, LFK, HOU, FTW
Group 2	ABL, FTW, HOU, PAR, DAL, CHS, WAC	BWD, ABL, TYL, HOU, PAR, LRD	WFS, HOU, PHR, ABL, PAR	CHS, WAC, DAL
Group 3	PHR, BWD, TYL, LBB, AUS, LRD, YKM, AMA	AUS, AMA, LBB, ATL, YKM	FTW, LBB, CRP, AMA, ELP, DAL	SJT, TYL, ODA, YKM, SAT, BMT, LBB, ELP, AUS, ATL, BWD, CRP
Group 4	ATL, LFK, CRP, SJT, SAT, BRY	CHS, SAT, PHR, CRP, SJT, BRY, LFK	AUS, LRD, BMT, WAC, YKM, SJT, ATL, LFK, ODA, BRY, BWD	BRY, LRD, AMA
Group 5	ODA, ELP, BMT	ODA, ELP, BMT	SAT, TYL	---

Table 13: Groups of statistically similar performance districts at 95 percent level of confidence for 2009

	TxCAP	**PMIS**	**TxTAP**	**TxMAP**
Group 1	LFK	LFK, PAR, YKM	FTW, YKM, CRP, LFK, WFS, CHS	LFK, ATL
Group 2	YKM	ATL, WFS, TYL, FTW, AUS, BRY, SAT, CRP	PAR, LBB, HOU, PHR, ATL, ELP	WFS, FTW, YKM
Group 3	WFS, ATL, PAR, FTW	DAL, HOU, ABL, WAC, BWD	ABL, SAT, BWD, AUS, TYL, AMA, DAL, WAC, BMT, LRD	TYL, PAR, SAT, AUS, PHR
Group 4	TYL, AUS, CRP, SAT, HOU	AMA, LRD, SJT, CHS, ELP, BMT	ODA, BRY, SJT	BMT, CRP, DAL, AMA, CHS, ABL, HOU, LBB, WAC, LRD
Group 5	DAL, ABL, WAC, BWD, CHS, AMA, BRY, LRD	LBB	---	BWD, ELP
Group 6	LBB, BMT, ELP, PHR	PHR	---	BRY, SJT, ODA
Group 7	SJT	ODA	---	---
Group 8	ODA	---	---	---

Table 14: Groups of statistically similar performance districts at 95 percent level of confidence for 2008

	TxCAP	**PMIS**	**TxTAP**	**TxMAP**
Group 1	PAR, CRP, HOU	PAR, CRP, DAL	HOU	HOU, PAR
Group 2	DAL	LRD, LFK, AMA, LBB, FTW, AUS, PHR, HOU	CRP	CRP, PHR
Group 3	LRD, FTW, LFK, SAT, LBB, PHR, AUS, WFS	YKM, SAT, WAC, BMT, TYL, WFS	SAT	LFK, FTW, TYL, LRD, SAT, WFS, DAL, BWD
Group 4	WAC, YKM, BMT, AMA, BWD, TYL	BRY, BWD, CHS, ABL, SJT, ODA, ATL	DAL, PAR, BMT, LBB, FTW, AUS, BWD, WFS, CHS, ELP	WAC, AUS, LBB, YKM
Group 5	ELP	ELP	LRD, YKM, ATL, ABL, LFK, SJT, WAC, ODA	BRY, ODA, SJT, BMT
Group 6	---	---	AMA, PHR, BRY, TYL	AMA, ELP, CHS
Group 7	---	---	---	ABL, ATL

Table 15: Groups of statistically similar performance districts at 95 percent level of confidence for 2008 – 2010 combined

	TxCAP	PMIS	TxTAP	TxMAP
Group 1	PAR	PAR, DAL	HOU, CHS	LFK, PAR, WFS, PAR, HOU
Group 2	LFK, FTW, WFS, YKM, CRP	FTW, WFS, CRP, LFK, AUS, TYL, YKM, WAC, LRD, HOU	CRP, WFS, PAR, FTW	FTW, TYL
Group 3	HOU, AUS, DAL, WAC, AMA, TYL, SAT, ATL	AMA, SAT, BWD, ABL, ATL, LBB	LBB, PHR, ABL, ELP	CRP, SAT, DAL, YKM, AUS, WAC
Group 4	LRD, LBB, BWD, BMT	BRY	DAL, SAT, YKM, AUS, BMT, LFK, BWD, ATL	ATL, LRD, BWD, BMT, LBB, ABL
Group 5	ABL, PHR, BRY, CHS, ELP	CHS, SJT, PHR, BMT	LRD, AMA, WAC	CHS, ODA, SJT, BRY, ELP
Group 6	SJT, ODA	ELP, ODA	SJT, ODA, TYL, BRY	---

5.4 LEVEL OF CONFIDENCE TABLES

Another technique of comparing the scores is to look at the levels of confidence at which the scores are statistically different from each other. A two-tailed heteroskedastic *t*-test methodology was applied to determine the level of confidence. This is the probability that the difference between scores is statistically significant. The level of confidence for the four scores for the year 2010 are shown in Tables 16 through 19. The results of the test for years 2008, 2009, and the 3 years combined are presented in Appendix F. Table 16 shows the probabilities that the 2010 TxCAP score for two respective districts are different. The cells have been highlighted to correspond to a 80 percent level of confidence. In other words, values less than 80% indicate that those two districts are considered not statistically different. The highlighted cells show the districts

which are statistically similar at an 80 percent confidence level. A clustering process similar to the one mentioned in the previous section can be conducted.

Table 16: Level of confidence analysis for TxCAP for 2010

		WFS	ABL	FTW	HOU	PAR	DAL	CHS	WAC	PHR	BWD	TYL	LBB	AUS	LRD	YKM	AMA	ATL	LFK	CRP	SJT	SAT	BRY	ODA	ELP	BMT
	Mean	74.08	75.76	76.05	76.05	76.08	76.11	76.52	76.89	77.43	77.99	78.25	78.45	78.46	78.47	79.04	79.13	79.30	79.38	79.45	79.61	79.89	80.40	81.30	81.59	82.25
WFS	74.08	0%	99%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ABL	75.76	99%	0%	33%	32%	38%	37%	76%	91%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	76.05	99%	33%	0%	0%	4%	6%	48%	74%	88%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	76.05	99%	32%	0%	0%	4%	6%	47%	72%	87%	99%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	76.08	99%	38%	4%	4%	0%	3%	46%	73%	87%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	76.11	99%	37%	6%	6%	3%	0%	39%	66%	83%	98%	99%	100%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CHS	76.52	100%	76%	48%	47%	46%	39%	0%	40%	71%	97%	98%	100%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WAC	76.89	100%	91%	74%	72%	73%	66%	40%	0%	45%	88%	93%	98%	94%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	77.43	100%	95%	88%	87%	87%	83%	71%	45%	0%	49%	64%	78%	72%	73%	93%	95%	96%	97%	98%	99%	100%	100%	100%	100%	100%
BWD	77.99	100%	100%	99%	99%	99%	98%	97%	88%	49%	0%	29%	54%	45%	47%	87%	91%	93%	95%	96%	98%	100%	100%	100%	100%	100%
TYL	78.25	100%	100%	100%	99%	100%	99%	98%	93%	64%	29%	0%	23%	20%	21%	71%	77%	83%	86%	88%	94%	98%	100%	100%	100%	100%
LBB	78.45	100%	100%	100%	100%	100%	100%	100%	98%	78%	54%	23%	0%	1%	2%	63%	71%	78%	83%	86%	93%	98%	100%	100%	100%	100%
AUS	78.46	100%	100%	100%	99%	100%	99%	98%	94%	72%	45%	20%	1%	0%	1%	52%	59%	68%	73%	76%	85%	94%	98%	100%	100%	100%
LRD	78.47	100%	100%	100%	100%	100%	99%	99%	95%	73%	47%	21%	2%	1%	0%	52%	60%	69%	74%	77%	86%	94%	99%	100%	100%	100%
YKM	79.04	100%	100%	100%	100%	100%	100%	100%	100%	93%	87%	71%	63%	52%	52%	0%	10%	27%	35%	42%	58%	79%	94%	100%	100%	100%
AMA	79.13	100%	100%	100%	100%	100%	100%	100%	100%	95%	91%	77%	71%	59%	60%	10%	0%	18%	27%	34%	52%	75%	93%	100%	100%	100%
ATL	79.30	100%	100%	100%	100%	100%	100%	100%	100%	96%	93%	83%	78%	68%	69%	27%	18%	0%	9%	16%	34%	61%	87%	100%	99%	100%
LFK	79.38	100%	100%	100%	100%	100%	100%	100%	100%	97%	95%	86%	83%	73%	74%	35%	27%	9%	0%	7%	25%	54%	84%	99%	99%	100%
CRP	79.45	100%	100%	100%	100%	100%	100%	100%	100%	98%	96%	88%	86%	76%	77%	42%	34%	16%	7%	0%	18%	48%	81%	99%	99%	100%
SJT	79.61	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	94%	93%	85%	86%	58%	52%	34%	25%	18%	0%	34%	76%	99%	99%	100%
SAT	79.89	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	94%	94%	79%	75%	61%	54%	48%	34%	0%	57%	98%	97%	99%
BRY	80.40	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	99%	94%	93%	87%	84%	81%	76%	57%	0%	83%	85%	96%
ODA	81.30	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	98%	83%	0%	29%	72%
ELP	81.59	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	97%	85%	29%	0%	49%
BMT	82.25	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	96%	72%	49%	0%

Table 17: Level of confidence analysis for PMIS for 2010

		WFS	DAL	FTW	WAC	BWD	ABL	TYL	HOU	PAR	LRD	AUS	AMA	LBB	ATL	YKM	CHS	SAT	PHR	CRP	SJT	BRY	LFK	ODA	ELP	BMT
		71.96	72.65	73.50	73.66	74.03	74.34	74.63	74.91	74.99	75.21	75.97	76.55	76.83	77.01	77.10	77.31	77.91	78.01	78.16	78.23	78.41	78.94	81.34	82.60	83.52
WFS	71.96	0%	49%	90%	93%	98%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	72.65	49%	0%	59%	67%	84%	92%	93%	96%	98%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	73.50	90%	59%	0%	14%	46%	68%	75%	85%	90%	92%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WAC	73.66	93%	67%	14%	0%	33%	57%	67%	79%	86%	88%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
BWD	74.03	98%	84%	46%	33%	0%	31%	48%	66%	76%	79%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ABL	74.34	99%	92%	68%	57%	31%	0%	25%	47%	58%	65%	91%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
TYL	74.63	99%	93%	75%	67%	48%	25%	0%	21%	30%	42%	78%	95%	98%	98%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	74.91	100%	96%	85%	79%	66%	47%	21%	0%	7%	23%	68%	91%	96%	96%	97%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%
PAR	74.99	100%	98%	90%	86%	76%	58%	30%	7%	0%	18%	67%	93%	97%	97%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LRD	75.21	100%	98%	92%	88%	79%	65%	42%	23%	18%	0%	52%	84%	92%	92%	94%	97%	100%	99%	100%	100%	100%	100%	100%	100%	100%
AUS	75.97	100%	100%	98%	97%	95%	91%	78%	68%	67%	52%	0%	44%	62%	67%	73%	81%	95%	92%	97%	98%	98%	99%	100%	100%	100%
AMA	76.55	100%	100%	100%	100%	100%	99%	95%	91%	93%	84%	44%	0%	26%	38%	46%	61%	89%	83%	93%	95%	96%	99%	100%	100%	100%
LBB	76.83	100%	100%	100%	100%	100%	100%	98%	96%	97%	92%	62%	26%	0%	16%	25%	43%	82%	75%	89%	91%	93%	98%	100%	100%	100%
ATL	77.01	100%	100%	100%	100%	100%	100%	98%	96%	97%	92%	67%	38%	16%	0%	7%	24%	67%	62%	77%	80%	85%	94%	100%	100%	100%
YKM	77.10	100%	100%	100%	100%	100%	100%	99%	97%	98%	94%	73%	46%	25%	7%	0%	19%	65%	60%	76%	79%	84%	94%	100%	100%	100%
CHS	77.31	100%	100%	100%	100%	100%	100%	99%	99%	99%	97%	81%	61%	43%	24%	19%	0%	51%	48%	65%	70%	77%	90%	100%	100%	100%
SAT	77.91	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	95%	89%	82%	67%	65%	51%	0%	7%	23%	29%	43%	73%	100%	100%	100%
PHR	78.01	100%	100%	100%	100%	100%	100%	100%	99%	100%	99%	92%	83%	75%	62%	60%	48%	7%	0%	12%	16%	29%	59%	100%	100%	100%
CRP	78.16	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97%	93%	89%	77%	76%	65%	23%	12%	0%	6%	21%	58%	100%	100%	100%
SJT	78.23	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	95%	91%	80%	79%	70%	29%	16%	6%	0%	16%	55%	100%	100%	100%
BRY	78.41	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	96%	93%	85%	84%	77%	43%	29%	21%	16%	0%	42%	100%	100%	100%
LFK	78.94	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	98%	94%	94%	90%	73%	59%	58%	55%	42%	0%	99%	100%	100%
ODA	81.34	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	0%	85%	94%
ELP	82.60	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	85%	0%	54%
BMT	83.52	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94%	54%	0%

Table 18: Level of confidence analysis for TxTAP 2010

		CHS	WFS	HOU	PHR	ABL	PAR	FTW	LBB	CRP	AMA	ELP	DAL	AUS	LRD	BMT	WAC	YKM	SJT	ATL	LFK	ODA	BRY	BWD	SAT	TYL
	Mean	71.06	74.88	75.53	76.17	76.49	76.57	78.96	79.00	79.35	80.14	80.21	80.38	81.03	81.18	81.43	81.85	81.85	82.11	82.12	82.19	82.65	82.86	82.93	83.77	84.27
CHS	71.06	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	74.88	100%	0%	41%	65%	87%	87%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	75.53	100%	41%	0%	36%	63%	64%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	76.17	100%	65%	36%	0%	20%	24%	97%	98%	97%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ABL	76.49	100%	87%	63%	20%	0%	7%	99%	100%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	76.57	100%	87%	64%	24%	7%	0%	98%	99%	98%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	78.96	100%	100%	100%	97%	99%	98%	0%	3%	26%	73%	63%	80%	94%	92%	95%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
LBB	79.00	100%	100%	100%	98%	100%	99%	3%	0%	25%	76%	64%	82%	96%	93%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	79.35	100%	100%	100%	97%	99%	98%	26%	25%	0%	50%	44%	60%	83%	82%	87%	96%	96%	98%	98%	99%	100%	100%	100%	100%	100%
AMA	80.14	100%	100%	100%	100%	100%	100%	73%	76%	50%	0%	4%	17%	58%	59%	69%	88%	89%	94%	93%	95%	99%	99%	99%	100%	100%
ELP	80.21	100%	100%	100%	99%	99%	99%	63%	64%	44%	4%	0%	9%	43%	47%	57%	75%	76%	83%	83%	85%	93%	94%	94%	99%	100%
DAL	80.38	100%	100%	100%	100%	100%	100%	80%	82%	60%	17%	9%	0%	43%	46%	58%	80%	81%	88%	88%	90%	97%	97%	97%	100%	100%
AUS	81.03	100%	100%	100%	100%	100%	100%	94%	96%	83%	58%	43%	43%	0%	9%	25%	53%	54%	68%	67%	72%	89%	91%	91%	100%	100%
LRD	81.18	100%	100%	100%	100%	100%	100%	92%	93%	82%	59%	47%	46%	9%	0%	14%	39%	40%	54%	54%	58%	78%	81%	82%	97%	99%
BMT	81.43	100%	100%	100%	100%	100%	100%	95%	96%	87%	69%	57%	58%	25%	14%	0%	25%	26%	41%	41%	46%	70%	74%	75%	96%	98%
WAC	81.85	100%	100%	100%	100%	100%	100%	99%	100%	96%	88%	75%	80%	53%	39%	25%	0%	0%	19%	19%	25%	57%	65%	66%	95%	98%
YKM	81.85	100%	100%	100%	100%	100%	100%	99%	100%	96%	89%	76%	81%	54%	40%	26%	0%	0%	19%	20%	25%	58%	66%	67%	96%	99%
SJT	82.11	100%	100%	100%	100%	100%	100%	100%	100%	98%	94%	83%	88%	68%	54%	41%	19%	19%	0%	1%	6%	43%	53%	55%	93%	98%
ATL	82.12	100%	100%	100%	100%	100%	100%	100%	100%	98%	93%	83%	88%	67%	54%	41%	19%	20%	1%	0%	5%	41%	51%	53%	92%	97%
LFK	82.19	100%	100%	100%	100%	100%	100%	100%	100%	99%	95%	85%	90%	72%	58%	46%	25%	25%	6%	5%	0%	37%	48%	51%	92%	97%
ODA	82.65	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	93%	97%	89%	78%	70%	57%	58%	43%	41%	37%	0%	18%	22%	84%	94%
BRY	82.86	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	94%	97%	91%	81%	74%	65%	66%	53%	51%	48%	18%	0%	5%	68%	85%
BWD	82.93	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	94%	97%	91%	82%	75%	66%	67%	55%	53%	51%	22%	5%	0%	61%	81%
SAT	83.77	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	97%	96%	95%	96%	93%	92%	92%	84%	68%	61%	0%	46%
TYL	84.27	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	99%	98%	97%	97%	94%	85%	81%	46%	0%

Table 19: Level of confidence analysis for TxMAP 2010

		WFS	PHR	PAR	ABL	LFK	HOU	FTW	CHS	WAC	DAL	SJT	TYL	ODA	YKM	SAT	BMT	LBB	ELP	AUS	ATL	BWD	CRP	BRY	LRD	AMA
	Mean	77.06	77.30	77.58	77.63	78.24	78.30	78.35	78.83	78.96	79.04	80.26	80.28	80.33	80.41	80.61	80.66	80.80	80.83	80.91	81.23	81.29	81.67	82.09	82.11	82.77
WFS	77.06	0%	20%	48%	60%	88%	89%	90%	98%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	77.30	20%	0%	22%	29%	68%	70%	72%	90%	92%	93%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	77.58	48%	22%	0%	6%	60%	62%	65%	89%	93%	93%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ABL	77.63	60%	29%	6%	0%	65%	67%	70%	94%	96%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LFK	78.24	88%	68%	60%	65%	0%	6%	11%	59%	68%	71%	100%	99%	100%	100%	100%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%
HOU	78.30	89%	70%	62%	67%	6%	0%	5%	52%	62%	66%	99%	99%	99%	100%	100%	98%	100%	99%	100%	100%	100%	100%	100%	100%	100%
FTW	78.35	90%	72%	65%	70%	11%	5%	0%	48%	58%	62%	99%	99%	99%	99%	100%	98%	100%	99%	100%	100%	100%	100%	100%	100%	100%
CHS	78.83	98%	90%	89%	94%	59%	52%	48%	0%	15%	23%	96%	96%	97%	98%	99%	95%	100%	97%	99%	100%	100%	100%	100%	100%	100%
WAC	78.96	99%	92%	93%	96%	68%	62%	58%	15%	0%	9%	93%	93%	95%	96%	99%	93%	100%	95%	99%	100%	100%	100%	100%	100%	100%
DAL	79.04	99%	93%	93%	96%	71%	66%	62%	23%	9%	0%	90%	90%	92%	94%	97%	90%	99%	93%	98%	99%	100%	100%	100%	100%	100%
SJT	80.26	100%	100%	100%	100%	100%	99%	99%	96%	93%	90%	0%	3%	8%	18%	41%	34%	61%	46%	60%	81%	83%	94%	99%	99%	100%
TYL	80.28	100%	100%	100%	100%	99%	99%	99%	96%	93%	90%	3%	0%	5%	14%	37%	31%	57%	43%	57%	79%	81%	93%	99%	98%	100%
ODA	80.33	100%	100%	100%	100%	100%	99%	99%	97%	95%	92%	8%	5%	0%	10%	34%	28%	54%	41%	55%	78%	80%	93%	99%	98%	100%
YKM	80.41	100%	100%	100%	100%	100%	100%	99%	98%	96%	94%	18%	14%	10%	0%	24%	21%	46%	34%	48%	73%	76%	91%	99%	98%	100%
SAT	80.61	100%	100%	100%	100%	100%	100%	100%	99%	99%	97%	41%	37%	34%	24%	0%	5%	25%	19%	32%	63%	66%	87%	98%	96%	100%
BMT	80.66	100%	100%	100%	100%	99%	98%	98%	95%	93%	90%	34%	31%	28%	21%	5%	0%	12%	11%	19%	44%	48%	70%	88%	86%	98%
LBB	80.80	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	61%	57%	54%	46%	25%	12%	0%	3%	12%	47%	52%	80%	97%	94%	100%
ELP	80.83	100%	100%	100%	100%	99%	99%	99%	97%	95%	93%	46%	43%	41%	34%	19%	11%	3%	0%	7%	32%	36%	62%	83%	81%	96%
AUS	80.91	100%	100%	100%	100%	100%	100%	100%	99%	99%	98%	60%	57%	55%	48%	32%	19%	12%	7%	0%	30%	35%	65%	88%	85%	99%
ATL	81.23	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	81%	79%	78%	73%	63%	44%	47%	32%	30%	0%	6%	43%	78%	73%	97%
BWD	81.29	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	83%	81%	80%	76%	66%	48%	52%	36%	35%	6%	0%	37%	73%	69%	96%
CRP	81.67	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94%	93%	93%	91%	87%	70%	80%	62%	65%	43%	37%	0%	44%	42%	87%
BRY	82.09	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	98%	88%	97%	83%	88%	78%	73%	44%	0%	2%	71%
LRD	82.11	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	98%	96%	86%	94%	81%	85%	73%	69%	42%	2%	0%	63%
AMA	82.77	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	100%	96%	99%	97%	96%	87%	71%	63%	0%

Chapter 6: Conclusions

The primary goal of this research was to determine whether TxCAP is an efficient and consistent means to assess conditions of TxDOT highways. The statistical analyses were carried out in two steps on a dataset covering all 25 districts spanning 3 years. This chapter presents the conclusions drawn from analyses conducted in this research.

6.1 CONCLUSIONS

The conclusions drawn from this research are as follows:

- TxDOT uses the Texas Condition Assessment Program (TxCAP) to provide a comprehensive assessment of Texas's highway by combining data from its subsystems: PMIS, TxTAP, and TxMAP. This comprehensive system eliminates duplication of the three separate scoring systems and provides a simplified and concise scoring system for the entire Texas roadway infrastructure.
- A literature review was conducted to identify research on the state-of-the-art for data collection procedures and methodologies. It was found that a few studies have been developed on statistical sampling procedures for a binary population using the sampling mechanism of sampling proportional to size.
- Since the data used in this study is not a binary population and the effort is designed to identify differences between mean scores, the minimum sample size was determined using a risk-based method to achieve a certain standard of quality. The sample size depends on the data variability, the chosen values of Type I error (α), Type II error (β) and tolerable error (e).
- A range of values for the tolerable error was estimated from the current dataset. A histogram of the differences of the scores was created and the mean was used to

estimate the tolerable error. Three different tolerable errors (0.5, 1.0 and 2.0) were used to calculate the minimum sample size.

- Analysis of the existing data shows that the three subsystems have different variances, and therefore the minimum sample size for the three subsystems should be different to ensure the same risk level. Currently, the same number of data points (survey sites) are collected for all three subsystems and this practice must be changed in order to ensure estimation at the same risk level. The highest number of data points is needed for the TxCAP subsystem followed by PMIS which is followed by TxMAP.
- The sample size calculation yielded various minimum sample sizes for the different combinations of confidence level $(1-\alpha)$, power $(1-\beta)$, and the tolerable error (e). The tables presented in this study show the minimum number of data points that should be collected by each district per year since comparisons are carried on an annual basis.
- In order to develop a valid TxCAP system, data for all three subsystems is required for all sections being sampled. Therefore, it is recommended that the number of data samples collected, for all subsystems, should match the largest minimum sample size (of the three subsystems) for a chosen risk level.
- This study also looked into two ways of increasing the data sampling process without significant cost increase:
    - One is to take data from ½-mile segments instead of the current 1-mile segments, i.e., by dividing the current sample into two samples. This method does not increase the statistical significance of the data as the data becomes non-random, which violates the key assumption for the sampling

process. The statistical significance can be increased only if all ½-mile sections are randomly selected.

- Another option is to aggregate the data for two years to create a larger sample. This process will definitely increase the sample size but care must be taken to ensure the time periods for comparison do not overlap.

- Statistical difference between the scores was determined by two-sample comparison using the *t*-test. In this study each district was assumed to form a population, i.e., a total of 25 populations. Each population was considered to have a different size and variance.
- A two-tailed *t*-test was carried out to test the null hypothesis at a 95 percent level of confidence. The null hypothesis in this study was that the mean scores of two districts are equal. The results of the *t*-test were presented as matrices, each cell contain "Yes" or "No" responses. The matrices show the comparison of each district with the remaining twenty-four districts.
- Because each "No" response indicates that the scores of the two respective districts are statistically not different, a group of "No" responses indicates that the scores of all districts within that group are not statistically different.
- In addition to the *t*-test results, the level of confidence was also calculated. The results are presented as matrices for each score for each year. These matrices give the probability that scores, of any two districts, are different.

Appendix A

Summary of Available Data

Table 20: Summary of Scores for 2008

		PMIS			TxTAP			TxMAP			TxCAP		
	Count	Mean	Variance	S.d.	Mean	Variance	S.d.	Mean	Variance	S.d.	Mean	Variance	S.d.
PAR	146	70.38	102.560	10.127	77.32	116.132	10.776	76.06	70.282	8.383	73.13	83.374	9.131
FTW	169	76.92	152.367	12.344	77.91	166.585	12.907	79.07	86.111	9.280	77.45	102.825	10.140
WFS	138	79.12	134.170	11.583	78.19	196.949	14.034	79.55	81.608	9.034	79.06	80.575	8.976
AMA	204	75.53	117.156	10.824	83.14	131.211	11.455	84.65	53.099	7.287	79.79	64.620	8.039
LBB	260	75.66	137.603	11.730	77.70	171.629	13.101	82.24	82.659	9.092	78.04	84.291	9.181
ODA	175	82.01	105.357	10.264	82.89	146.135	12.089	82.97	74.871	8.653	82.48	72.573	8.519
SJT	169	81.79	71.725	8.469	82.36	92.409	9.613	83.11	38.799	6.229	82.30	39.739	6.304
ABL	169	81.78	90.195	9.497	81.94	144.183	12.008	86.65	60.970	7.808	83.27	59.213	7.695
WAC	150	77.72	116.107	10.775	82.50	122.952	11.088	81.04	46.187	6.796	79.67	59.266	7.698
TYL	184	78.55	124.916	11.177	85.05	98.393	9.919	79.13	49.562	7.040	80.03	57.698	7.596
LFK	141	75.28	129.221	11.368	82.21	104.031	10.200	78.87	52.487	7.245	77.46	90.611	9.519
HOU	138	77.17	99.814	9.991	68.08	146.259	12.094	74.25	88.545	9.410	74.47	76.518	8.747
YKM	177	77.48	101.965	10.098	81.51	130.414	11.420	82.28	49.795	7.057	79.73	53.846	7.338
AUS	155	77.01	99.772	9.989	78.02	144.725	12.030	81.07	70.847	8.417	78.43	66.580	8.160
SAT	201	77.57	120.614	10.982	74.75	160.526	12.670	79.55	137.662	11.733	77.60	85.296	9.236
CRP	136	71.72	85.471	9.245	72.02	88.207	9.392	76.54	46.992	6.855	73.23	44.772	6.691
BRY	161	80.21	88.192	9.391	84.30	93.078	9.648	82.85	50.017	7.072	81.82	51.843	7.200
DAL	168	73.01	190.303	13.795	77.06	149.489	12.227	80.14	107.388	10.363	75.96	106.828	10.336
ATL	131	82.36	113.161	10.638	81.63	113.414	10.650	86.71	81.081	9.004	83.52	74.319	8.621
BMT	113	78.52	155.951	12.488	77.55	173.423	13.169	83.38	114.649	10.707	79.78	106.509	10.320
PHR	99	77.06	100.513	10.026	83.22	94.648	9.729	77.16	47.089	6.862	78.32	50.125	7.080
LRD	106	74.66	105.796	10.286	80.30	116.125	10.776	79.18	50.651	7.117	77.14	62.292	7.893
BWD	144	80.30	87.732	9.367	78.13	135.361	11.634	80.37	60.903	7.804	79.89	56.959	7.547
ELP	99	84.96	56.391	7.509	79.20	130.228	11.412	85.89	63.964	7.998	84.09	41.946	6.477
CHS	128	81.27	104.160	10.206	78.23	208.411	14.436	86.33	103.813	10.189	82.18	85.913	9.269
All Districts	3861	77.80	123.457	11.111	79.48	149.890	12.243	81.24	81.068	9.004	79.13	78.663	8.869

Table 21: Summary of Scores for 2009

		PMIS			TxTAP			TxMAP			TxCAP		
	Count	Mean	Variance	S.d.	Mean	Variance	S.d.	Mean	Variance	S.d.	Mean	Variance	S.d.
PAR	160	71.08	59.449	7.710	76.29	93.369	9.663	77.00	41.873	6.471	73.90	36.086	6.007
FTW	171	72.31	95.900	9.793	74.22	83.377	9.131	76.58	56.195	7.496	73.97	61.386	7.835
WFS	141	72.25	110.459	10.510	75.68	135.497	11.640	75.05	61.054	7.814	73.78	64.217	8.014
AMA	210	76.00	64.007	8.000	80.01	83.924	9.161	79.86	44.637	6.681	77.96	41.069	6.408
LBB	258	78.21	62.901	7.931	76.71	122.825	11.083	80.16	38.995	6.245	78.50	40.335	6.351
ODA	182	83.13	65.579	8.098	82.88	78.178	8.842	83.29	64.495	8.031	83.12	46.692	6.833
SJT	172	76.53	60.122	7.754	83.70	92.454	9.615	83.21	27.394	5.234	79.97	32.525	5.703
ABL	179	74.53	76.533	8.748	78.67	97.503	9.874	80.12	35.567	5.964	77.04	41.641	6.453
WAC	161	74.69	40.003	6.325	80.10	80.623	8.979	80.22	42.518	6.521	77.43	27.055	5.201
TYL	187	72.26	81.613	9.034	79.75	84.186	9.175	76.83	50.592	7.113	75.13	47.223	6.872
LFK	142	69.83	64.292	8.018	75.37	63.575	7.973	73.19	42.209	6.497	71.94	41.424	6.436
HOU	135	74.04	99.368	9.968	77.29	118.903	10.904	80.16	42.596	6.527	76.52	55.944	7.480
YKM	183	71.34	57.810	7.603	75.25	86.196	9.284	76.61	50.527	7.108	73.70	39.121	6.255
AUS	178	72.67	112.046	10.585	79.57	137.890	11.743	77.91	73.749	8.588	75.62	76.189	8.729
SAT	230	73.36	112.392	10.601	78.95	94.218	9.707	77.65	54.256	7.366	75.77	63.825	7.989
CRP	138	73.65	101.557	10.078	75.30	137.417	11.723	79.34	43.412	6.589	75.69	62.606	7.912
BRY	158	73.35	75.199	8.672	83.36	90.932	9.536	82.13	31.728	5.633	77.99	36.601	6.050
DAL	189	73.99	75.259	8.675	80.02	86.142	9.281	79.52	45.107	6.716	76.86	45.892	6.774
ATL	147	71.86	46.020	6.784	77.70	75.683	8.700	74.60	40.758	6.384	73.85	28.643	5.352
BMT	110	77.78	77.770	8.819	80.18	105.575	10.275	78.89	52.028	7.213	78.59	47.861	6.918
PHR	118	81.18	57.808	7.603	77.58	79.308	8.905	77.93	47.696	6.906	79.49	41.357	6.431
LRD	99	76.18	99.087	9.954	80.93	132.110	11.494	80.47	28.412	5.330	78.42	55.486	7.449
BWD	135	75.11	60.983	7.809	79.33	99.833	9.992	80.68	32.546	5.705	77.62	36.995	6.082
ELP	104	77.77	71.745	8.470	77.70	83.327	9.128	81.56	50.160	7.082	78.90	47.377	6.883
CHS	128	77.28	45.811	6.768	76.07	123.437	11.110	80.02	35.366	5.947	77.86	29.308	5.414
All Districts	4015	74.75	84.207	9.176	78.55	104.085	10.202	78.92	51.684	7.189	76.76	51.682	7.189

Table 22: Summary of Scores for 2010

		PMIS			TxTAP			TxMAP			TxCAP		
	Count	Mean	Variance	S.d.	Mean	Variance	S.d.	Mean	Variance	S.d.	Mean	Variance	S.d.
PAR	166	74.99	60.654	7.788	76.57	91.757	9.579	77.58	57.596	7.589	76.08	42.176	6.494
FTW	164	73.50	70.380	8.389	78.96	89.482	9.460	78.35	52.906	7.274	76.05	47.213	6.871
WFS	145	71.96	63.278	7.955	74.88	101.807	10.090	77.06	43.691	6.610	74.08	40.223	6.342
AMA	196	76.55	74.207	8.614	80.14	112.443	10.604	82.77	41.323	6.428	79.13	47.364	6.882
LBB	257	76.83	80.807	8.989	79.00	95.272	9.761	80.80	40.669	6.377	78.45	44.319	6.657
ODA	175	81.34	51.971	7.209	82.65	63.904	7.994	80.33	41.527	6.444	81.30	33.811	5.815
SJT	165	78.23	61.144	7.819	82.11	87.058	9.330	80.26	39.504	6.285	79.61	36.519	6.043
ABL	185	74.34	53.979	7.347	76.49	77.142	8.783	77.63	28.467	5.335	75.76	32.228	5.677
WAC	168	73.66	74.716	8.644	81.85	107.066	10.347	78.96	42.352	6.508	76.89	47.286	6.877
TYL	175	74.63	94.675	9.730	84.27	66.584	8.160	80.28	46.402	6.812	78.25	51.941	7.207
LFK	140	78.94	74.474	8.630	82.19	73.598	8.579	78.24	37.479	6.122	79.38	40.674	6.378
HOU	150	74.91	79.405	8.911	75.53	110.702	10.521	78.30	46.867	6.846	76.05	49.014	7.001
YKM	168	77.10	71.196	8.438	81.85	97.504	9.874	80.41	39.252	6.265	79.04	44.637	6.681
AUS	166	75.97	103.489	10.173	81.03	105.731	10.283	80.91	59.373	7.705	78.46	67.298	8.204
SAT	225	77.91	78.390	8.854	83.77	63.510	7.969	80.61	40.540	6.367	79.89	41.506	6.443
CRP	141	78.16	56.643	7.526	79.35	114.957	10.722	81.67	43.246	6.576	79.45	40.674	6.378
BRY	146	78.41	62.215	7.888	82.86	80.313	8.962	82.09	30.173	5.493	80.40	34.401	5.865
DAL	177	72.65	111.106	10.541	80.38	122.506	11.068	79.04	54.247	7.365	76.11	67.684	8.227
ATL	130	77.01	66.711	8.168	82.12	76.611	8.753	81.23	38.956	6.242	79.30	38.266	6.186
BMT	106	83.52	110.646	10.519	81.43	107.414	10.364	80.66	67.261	8.201	82.25	60.166	7.757
PHR	103	78.01	76.939	8.771	76.17	121.250	11.011	77.30	64.239	8.015	77.43	52.793	7.266
LRD	112	75.21	60.846	7.800	81.18	117.425	10.836	82.11	36.493	6.041	78.47	41.471	6.440
BWD	145	74.03	45.642	6.756	82.93	94.673	9.730	81.29	45.631	6.755	77.99	32.557	5.706
ELP	103	82.60	47.018	6.857	80.21	140.109	11.837	80.83	65.228	8.076	81.59	44.223	6.650
CHS	124	77.31	51.724	7.192	71.06	94.751	9.734	78.83	30.517	5.524	76.52	29.046	5.389
All Districts	3932	76.52	78.746	8.874	80.10	103.422	10.170	79.93	46.836	6.844	78.26	47.723	6.908

Table 23: Summary of Scores of all three years (2008 – 2010)

		PMIS			TxTAP			TxMAP			TxCAP		
District	Count	Mean	Variance	S.d.	Mean	Variance	S.d.	Mean	Variance	S.d.	Mean	Variance	S.d.
PAR	472	72.24	77.09	8.780	76.71	99.60	9.980	77.03	49.59	7.042	70.31	86.40	9.295
FTW	504	74.25	109.97	10.487	77.00	116.98	10.816	77.99	66.17	8.135	75.78	78.13	8.839
WFS	424	74.39	112.39	10.602	76.23	145.27	12.053	77.20	64.86	8.053	76.34	67.73	8.230
AMA	610	76.02	84.95	9.217	81.10	110.64	10.519	82.40	50.21	7.086	77.66	51.79	7.197
LBB	775	76.90	94.76	9.734	77.80	130.61	11.428	81.07	54.83	7.404	78.39	57.13	7.558
ODA	532	82.17	74.45	8.629	82.81	95.49	9.772	82.21	61.88	7.866	81.76	57.04	7.553
SJT	506	78.84	68.94	8.303	82.74	90.81	9.530	82.21	36.87	6.072	81.10	36.76	6.063
ABL	533	76.77	84.46	9.190	78.95	109.80	10.479	81.32	55.26	7.433	79.54	53.23	7.296
WAC	479	75.28	78.59	8.865	81.46	103.74	10.185	80.03	44.16	6.645	77.57	41.61	6.451
TYL	546	75.14	106.89	10.339	82.99	88.59	9.412	78.71	50.79	7.127	77.67	55.39	7.442
LFK	423	74.66	102.96	10.147	79.90	90.38	9.507	76.75	50.35	7.096	75.70	68.69	8.288
HOU	423	75.37	93.69	9.679	73.66	139.98	11.831	77.57	64.76	8.047	76.90	60.79	7.797
YKM	528	75.23	84.65	9.201	79.45	113.61	10.659	79.72	52.23	7.227	76.50	52.58	7.252
AUS	499	75.11	108.46	10.415	79.58	130.25	11.413	79.89	69.97	8.365	77.17	68.85	8.297
SAT	656	76.21	107.35	10.361	79.32	116.94	10.814	79.25	76.42	8.742	77.68	67.49	8.215
CRP	415	74.55	87.98	9.380	75.60	122.14	11.052	79.22	48.71	6.980	76.56	59.67	7.724
BRY	465	77.31	83.93	9.162	83.53	88.32	9.398	82.36	37.54	6.127	79.81	45.12	6.717
DAL	534	73.24	123.19	11.099	79.21	119.81	10.946	79.56	67.67	8.226	77.27	64.74	8.046
ATL	408	76.87	92.56	9.621	80.37	91.73	9.577	80.60	78.05	8.834	77.82	75.66	8.699
BMT	329	79.88	120.92	10.996	79.68	131.33	11.460	81.00	81.45	9.025	79.14	63.62	7.976
PHR	320	78.88	79.92	8.940	78.87	105.77	10.285	77.49	52.62	7.254	79.63	53.31	7.301
LRD	317	75.33	87.64	9.362	80.81	120.94	10.997	80.62	39.94	6.320	78.28	56.77	7.534
BWD	424	76.51	72.14	8.494	80.15	113.88	10.672	80.78	46.58	6.825	78.65	46.62	6.828
ELP	306	81.73	67.06	8.189	79.03	117.93	10.860	82.72	64.25	8.015	80.46	44.59	6.677
CHS	380	78.63	70.58	8.401	75.16	150.91	12.285	81.75	67.43	8.211	80.11	58.26	7.633
All Districts	11808	76.34	96.78	9.838	79.37	119.23	10.919	80.02	60.27	7.763	77.86	63.70	7.981

Table 24: Relative ranking of districts by scores

	PMIS			TxTAP			TxMAP			TxCAP		
	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010
LOWEST	PAR	LFK	WFS	HOU	FTW	CHS	HOU	LFK	WFS	PAR	LFK	WFS
	CRP	PAR	DAL	CRP	YKM	WFS	PAR	ATL	PHR	CRP	YKM	ABL
	DAL	YKM	FTW	SAT	CRP	HOU	CRP	WFS	PAR	HOU	WFS	FTW
	LRD	ATL	WAC	DAL	LFK	PHR	PHR	FTW	ABL	DAL	ATL	HOU
	LFK	WFS	BWD	PAR	WFS	ABL	LFK	YKM	LFK	LRD	PAR	PAR
	AMA	TYL	ABL	BMT	CHS	PAR	FTW	TYL	HOU	FTW	FTW	DAL
	LBB	FTW	TYL	LBB	PAR	FTW	TYL	PAR	FTW	LFK	TYL	CHS
	FTW	AUS	HOU	FTW	LBB	LBB	LRD	SAT	CHS	SAT	AUS	WAC
	AUS	BRY	PAR	AUS	HOU	CRP	SAT	AUS	WAC	LBB	CRP	PHR
	PHR	SAT	LRD	BWD	PHR	AMA	WFS	PHR	DAL	PHR	SAT	BWD
	HOU	CRP	AUS	WFS	ATL	ELP	DAL	BMT	SJT	AUS	HOU	TYL
	YKM	DAL	AMA	CHS	ELP	DAL	BWD	CRP	TYL	WFS	DAL	LBB
	SAT	HOU	LBB	ELP	ABL	AUS	WAC	DAL	ODA	WAC	ABL	AUS
	WAC	ABL	ATL	LRD	SAT	LRD	AUS	AMA	YKM	YKM	WAC	LRD
	BMT	WAC	YKM	YKM	BWD	BMT	LBB	CHS	SAT	BMT	BWD	YKM
	TYL	BWD	CHS	ATL	AUS	WAC	YKM	ABL	BMT	AMA	CHS	AMA
	WFS	AMA	SAT	ABL	TYL	YKM	BRY	HOU	LBB	BWD	AMA	ATL
	BRY	LRD	PHR	LFK	AMA	SJT	ODA	LBB	ELP	TYL	BRY	LFK
	BWD	SJT	CRP	SJT	DAL	ATL	SJT	WAC	AUS	BRY	LRD	CRP
	CHS	CHS	SJT	WAC	WAC	LFK	BMT	LRD	ATL	CHS	LBB	SJT
	ABL	ELP	BRY	ODA	BMT	ODA	AMA	BWD	BWD	SJT	BMT	SAT
	SJT	BMT	LFK	AMA	LRD	BRY	ELP	ELP	CRP	ODA	ELP	BRY
	ODA	LBB	ODA	PHR	ODA	BWD	CHS	BRY	BRY	ABL	PHR	ODA
	ATL	PHR	ELP	BRY	BRY	SAT	ABL	SJT	LRD	ATL	SJT	ELP
HIGHEST	ELP	ODA	BMT	TYL	SJT	TYL	ATL	ODA	AMA	ELP	ODA	BMT

Appendix B

Tolerable Error Estimation

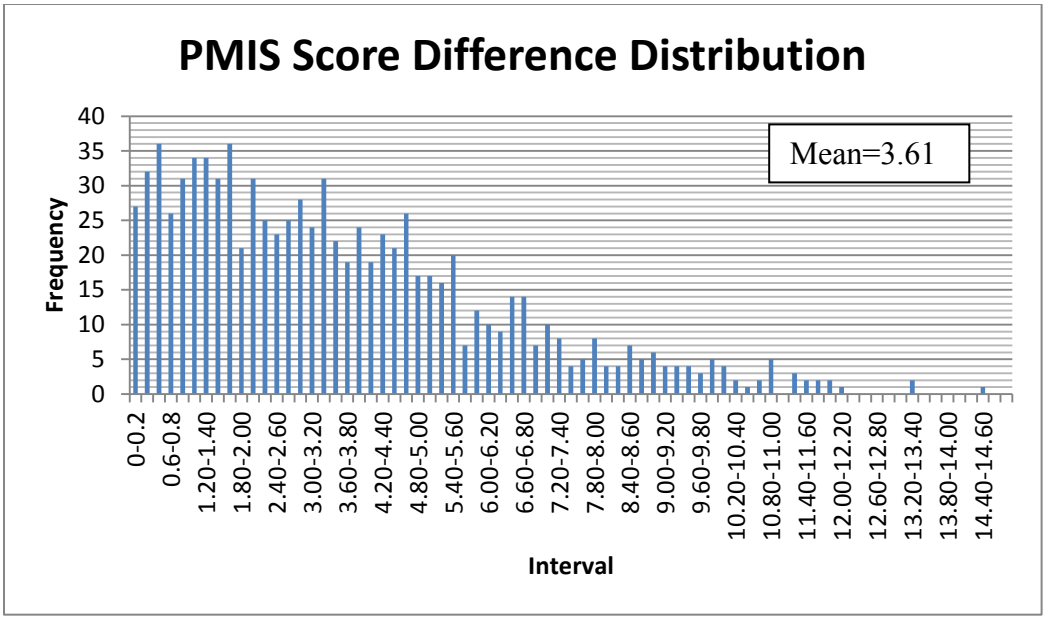

Figure 5: Distribution of differences of PMIS Scores

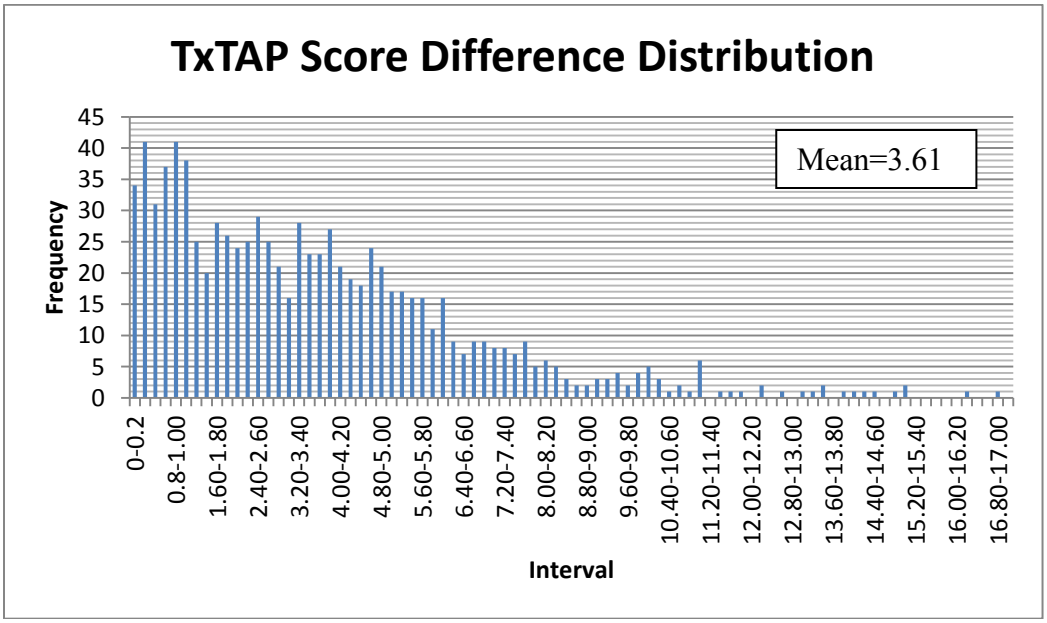

Figure 6: Distribution of differences of TxTAP Scores

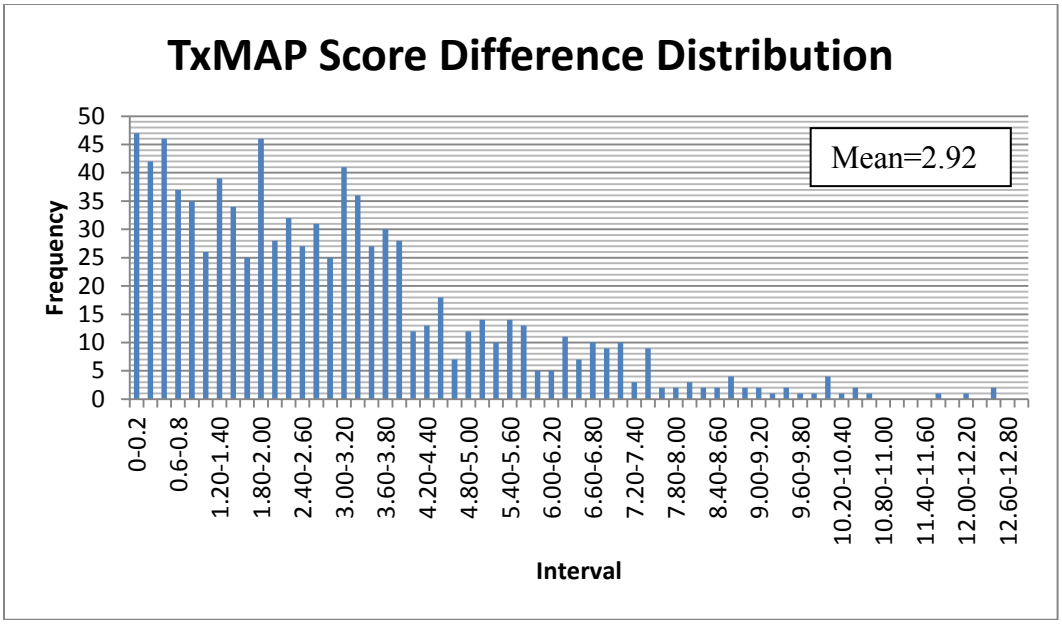

Figure 7 : Distribution of differences of TxMAP scores

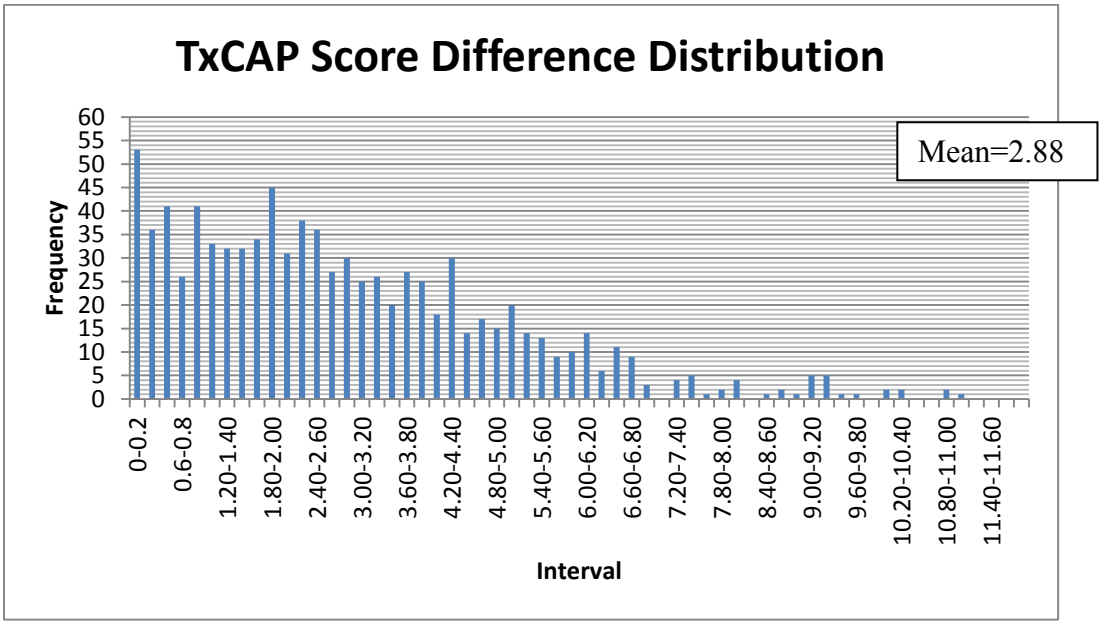

Figure 8: Distribution of differences of TxCAP scores

Appendix C

Sample size variation with different parameters

Table 25: Required Sample Size for PMIS (based on 2008 – 2010)

			Sample Sizes			
Conf. Level, (1-α)%	**β =**		**0.01**	**0.05**	**0.1**	**0.2**
99	μ =	76.34	8380	6105	5039	3885
97	σ =	9.838	6852	4812	3871	2869
95	e =	0.5	6105	4190	3315	2393
90			5039	3315	2543	1745

			Sample Sizes			
Conf. Level, (1-α)%	**β =**		**0.01**	**0.05**	**0.1**	**0.2**
99	μ =	76.34	2095	1526	1260	971
97	σ =	9.838	1713	1203	968	717
95	e =	1	1526	1047	829	598
90			1260	829	636	436

			Sample Sizes			
Conf. Level, (1-α)%	**β =**		**0.01**	**0.05**	**0.1**	**0.2**
99	μ =	76.34	524	382	315	243
97	σ =	9.838	428	301	242	179
95	e =	2	382	262	207	150
90			315	207	159	109

Table 26: Required Sample Size for TxTAP (based on 2008 – 2010)

			Sample Sizes			
Conf. Level, (1-α)%	**β =**		**0.01**	**0.05**	**0.1**	**0.2**
99	μ =	79.37	10324	7521	6208	4786
97	σ =	10.919	8441	5928	4769	3535
95	e =	0.5	7521	5161	4084	2948
90			6208	4084	3133	2150

			Sample Sizes			
Conf. Level, (1-α)%	**β =**		**0.01**	**0.05**	**0.1**	**0.2**
99	μ =	79.37	2581	1880	1552	1197
97	σ =	10.919	2110	1482	1192	884
95	e =	1	1880	1290	1021	737
90			1552	1021	783	537

			Sample Sizes			
Conf. Level, (1-α)%	**β =**		**0.01**	**0.05**	**0.1**	**0.2**
99	μ =	79.37	645	470	388	299
97	σ =	10.919	528	370	298	221
95	e =	2	470	323	255	184
90			388	255	196	134

Table 27: Required Sample Size for TxMAP (based on 2008 – 2010)

			Sample Sizes			
Conf. Level, (1-α)%	**β =**		**0.01**	**0.05**	**0.1**	**0.2**
99	μ =	80.02	5219	3802	3138	2419
97	σ =	7.763	4267	2997	2411	1787
95	e =	0.5	3802	2609	2065	1490
90			3138	2065	1584	1087

			Sample Sizes			
Conf. Level, (1-α)%	**β =**		**0.01**	**0.05**	**0.1**	**0.2**
99	μ =	80.02	1305	950	785	605
97	σ =	7.763	1067	749	603	447
95	e =	1	950	652	516	373
90			785	516	396	272

			Sample Sizes			
Conf. Level, (1-α)%	**β =**		**0.01**	**0.05**	**0.1**	**0.2**
99	μ =	80.02	326	238	196	151
97	σ =	7.763	267	187	151	112
95	e =	2	238	163	129	93
90			196	129	99	68

Appendix D

Comparison of scores using *t*-test at 95% confidence level

Table 28: Matrix of differences for TxCAP for 2010 (an example)

	WFS	ABL	FTW	HOU	PAR	DAL	CHS	WAC	PHR	BWD	TYL	LBB	AUS	LRD	YKM	AMA	ATL	LFK	CRP	SJT	SAT	BRY	ODA	ELP	BMT
WFS		1.68	1.97	1.98	2.01	2.04	2.44	2.81	3.35	3.91	4.18	4.38	4.39	4.40	4.97	5.06	5.22	5.31	5.38	5.54	5.82	6.33	7.22	7.52	8.17
ABL	-1.68		0.29	0.29	0.33	0.36	0.76	1.13	1.67	2.23	2.50	2.69	2.71	2.71	3.28	3.38	3.54	3.62	3.70	3.85	4.13	4.65	5.54	5.83	6.49
FTW	-1.97	-0.29		0.00	0.04	0.07	0.47	0.84	1.38	1.94	2.21	2.40	2.42	2.42	2.99	3.09	3.25	3.34	3.41	3.56	3.84	4.36	5.25	5.54	6.20
HOU	-1.98	-0.29	0.00		0.03	0.06	0.47	0.84	1.38	1.94	2.20	2.40	2.41	2.42	2.99	3.08	3.25	3.33	3.40	3.56	3.84	4.35	5.25	5.54	6.20
PAR	-2.01	-0.33	-0.04	-0.03		0.03	0.43	0.81	1.34	1.90	2.17	2.37	2.38	2.39	2.96	3.05	3.21	3.30	3.37	3.53	3.81	4.32	5.21	5.51	6.16
DAL	-2.04	-0.36	-0.07	-0.06	-0.03		0.40	0.78	1.31	1.87	2.14	2.34	2.35	2.36	2.93	3.02	3.19	3.27	3.34	3.50	3.78	4.29	5.18	5.48	6.13
CHS	-2.44	-0.76	-0.47	-0.47	-0.43	-0.40		0.37	0.91	1.47	1.74	1.94	1.95	1.95	2.53	2.62	2.78	2.87	2.94	3.09	3.38	3.89	4.78	5.08	5.73
WAC	-2.81	-1.13	-0.84	-0.84	-0.81	-0.78	-0.37		0.54	1.10	1.36	1.56	1.57	1.58	2.15	2.24	2.41	2.49	2.56	2.72	3.00	3.51	4.41	4.70	5.36
PHR	-3.35	-1.67	-1.38	-1.38	-1.34	-1.31	-0.91	-0.54		0.56	0.83	1.02	1.04	1.04	1.61	1.71	1.87	1.96	2.03	2.18	2.46	2.98	3.87	4.16	4.82
BWD	-3.91	-2.23	-1.94	-1.94	-1.90	-1.87	-1.47	-1.10	-0.56		0.27	0.46	0.48	0.48	1.05	1.15	1.31	1.39	1.47	1.62	1.90	2.42	3.31	3.60	4.26
TYL	-4.18	-2.50	-2.21	-2.20	-2.17	-2.14	-1.74	-1.36	-0.83	-0.27		0.20	0.21	0.22	0.79	0.88	1.05	1.13	1.20	1.36	1.64	2.15	3.05	3.34	3.99
LBB	-4.38	-2.69	-2.40	-2.40	-2.37	-2.34	-1.94	-1.56	-1.02	-0.46	-0.20		0.01	0.02	0.59	0.68	0.85	0.93	1.00	1.16	1.44	1.95	2.85	3.14	3.79
AUS	-4.39	-2.71	-2.42	-2.41	-2.38	-2.35	-1.95	-1.57	-1.04	-0.48	-0.21	-0.01		0.01	0.58	0.67	0.84	0.92	0.99	1.15	1.43	1.94	2.84	3.13	3.78
LRD	-4.40	-2.71	-2.42	-2.42	-2.39	-2.36	-1.95	-1.58	-1.04	-0.48	-0.22	-0.02	-0.01		0.57	0.66	0.83	0.91	0.98	1.14	1.42	1.93	2.83	3.12	3.77
YKM	-4.97	-3.28	-2.99	-2.99	-2.96	-2.93	-2.53	-2.15	-1.61	-1.05	-0.79	-0.59	-0.58	-0.57		0.09	0.26	0.34	0.41	0.57	0.85	1.36	2.26	2.55	3.20
AMA	-5.06	-3.38	-3.09	-3.08	-3.05	-3.02	-2.62	-2.24	-1.71	-1.15	-0.88	-0.68	-0.67	-0.66	-0.09		0.17	0.25	0.32	0.48	0.76	1.27	2.17	2.46	3.11
ATL	-5.22	-3.54	-3.25	-3.25	-3.21	-3.19	-2.78	-2.41	-1.87	-1.31	-1.05	-0.85	-0.84	-0.83	-0.26	-0.17		0.08	0.15	0.31	0.59	1.10	2.00	2.29	2.95
LFK	-5.31	-3.62	-3.34	-3.33	-3.30	-3.27	-2.87	-2.49	-1.96	-1.39	-1.13	-0.93	-0.92	-0.91	-0.34	-0.25	-0.08		0.07	0.23	0.51	1.02	1.92	2.21	2.86
CRP	-5.38	-3.70	-3.41	-3.40	-3.37	-3.34	-2.94	-2.56	-2.03	-1.47	-1.20	-1.00	-0.99	-0.98	-0.41	-0.32	-0.15	-0.07		0.16	0.44	0.95	1.84	2.14	2.79
SJT	-5.54	-3.85	-3.56	-3.56	-3.53	-3.50	-3.09	-2.72	-2.18	-1.62	-1.36	-1.16	-1.15	-1.14	-0.57	-0.48	-0.31	-0.23	-0.16		0.28	0.79	1.69	1.98	2.63
SAT	-5.82	-4.13	-3.84	-3.84	-3.81	-3.78	-3.38	-3.00	-2.46	-1.90	-1.64	-1.44	-1.43	-1.42	-0.85	-0.76	-0.59	-0.51	-0.44	-0.28		0.51	1.41	1.70	2.35
BRY	-6.33	-4.65	-4.36	-4.35	-4.32	-4.29	-3.89	-3.51	-2.98	-2.42	-2.15	-1.95	-1.94	-1.93	-1.36	-1.27	-1.10	-1.02	-0.95	-0.79	-0.51		0.90	1.19	1.84
ODA	-7.22	-5.54	-5.25	-5.25	-5.21	-5.18	-4.78	-4.41	-3.87	-3.31	-3.05	-2.85	-2.84	-2.83	-2.26	-2.17	-2.00	-1.92	-1.84	-1.69	-1.41	-0.90		0.29	0.95
ELP	-7.52	-5.83	-5.54	-5.54	-5.51	-5.48	-5.08	-4.70	-4.16	-3.60	-3.34	-3.14	-3.13	-3.12	-2.55	-2.46	-2.29	-2.21	-2.14	-1.98	-1.70	-1.19	-0.29		0.65
BMT	-8.17	-6.49	-6.20	-6.20	-6.16	-6.13	-5.73	-5.36	-4.82	-4.26	-3.99	-3.79	-3.78	-3.77	-3.20	-3.11	-2.95	-2.86	-2.79	-2.63	-2.35	-1.84	-0.95	-0.65	

Table 29: Combined Standard deviation for TxCAP Scores for 2010 (an example)

					WFS	ABL	FTW	HOU	PAR	DAL	CHS	WAC	PHR	BWD	TYL	LBB	AUS	LRD	YKM	AMA	ATL	LFK	CRP	SJT	SAT	BRY	ODA	ELP	BMT
				Mean	74.08	75.76	76.05	76.05	76.08	76.11	76.52	76.89	77.43	77.99	78.25	78.45	78.46	78.47	79.04	79.13	79.30	79.38	79.45	79.61	79.89	80.40	81.30	81.59	82.25
				var	40.223	32.228	47.213	49.014	42.176	67.684	29.046	47.286	52.793	32.557	51.941	44.319	67.298	41.471	44.637	47.364	38.266	40.674	40.674	36.519	41.506	34.401	33.811	44.223	60.166
				S.d.	6.342	5.677	6.871	7.001	6.494	8.227	5.389	6.877	7.266	5.706	7.207	6.657	8.204	6.440	6.681	6.882	6.186	6.378	6.378	6.043	6.443	5.865	5.815	6.650	7.757
				n	145	185	164	150	166	177	124	168	103	145	175	257	166	112	168	196	130	140	141	165	225	146	175	103	106
n	**S.d.**	var	Mean		**WFS**	**ABL**	**FTW**	**HOU**	**PAR**	**DAL**	**CHS**	**WAC**	**PHR**	**BWD**	**TYL**	**LBB**	**AUS**	**LRD**	**YKM**	**AMA**	**ATL**	**LFK**	**CRP**	**SJT**	**SAT**	**BRY**	**ODA**	**ELP**	**BMT**
145	6.342	40.223	74.08	**WFS**	0.74	0.67	0.75	0.78	0.73	0.81	0.72	0.75	0.89	0.71	0.76	0.67	0.83	0.80	0.74	0.72	0.76	0.75	0.75	0.71	0.68	0.72	0.69	0.84	0.92
185	5.677	32.228	75.76	**ABL**	0.67	0.59	0.68	0.71	0.65	0.75	0.64	0.68	0.83	0.63	0.69	0.59	0.76	0.74	0.66	0.64	0.68	0.68	0.68	0.63	0.60	0.64	0.61	0.78	0.86
164	6.871	47.213	76.05	**FTW**	0.75	0.68	0.76	0.78	0.74	0.82	0.72	0.75	0.89	0.72	0.76	0.68	0.83	0.81	0.74	0.73	0.76	0.76	0.76	0.71	0.69	0.72	0.69	0.85	0.92
150	7.001	49.014	76.05	**HOU**	0.78	0.71	0.78	0.81	0.76	0.84	0.75	0.78	0.92	0.74	0.79	0.71	0.86	0.83	0.77	0.75	0.79	0.79	0.78	0.74	0.72	0.75	0.72	0.87	0.95
166	6.494	42.176	76.08	**PAR**	0.73	0.65	0.74	0.76	0.71	0.80	0.70	0.73	0.88	0.69	0.74	0.65	0.81	0.79	0.72	0.70	0.74	0.74	0.74	0.69	0.66	0.70	0.67	0.83	0.91
177	8.227	67.684	76.11	**DAL**	0.81	0.75	0.82	0.84	0.80	0.87	0.79	0.81	0.95	0.78	0.82	0.74	0.89	0.87	0.81	0.79	0.82	0.82	0.82	0.78	0.75	0.79	0.76	0.90	0.97
88	5.389	29.046	76.52	**CHS**	0.78	0.71	0.79	0.81	0.76	0.84	0.75	0.78	0.92	0.74	0.79	0.71	0.86	0.84	0.77	0.76	0.79	0.79	0.79	0.74	0.72	0.75	0.72	0.87	0.95
168	6.877	47.286	76.89	**WAC**	0.75	0.68	0.75	0.78	0.73	0.81	0.72	0.75	0.89	0.71	0.76	0.67	0.83	0.81	0.74	0.72	0.76	0.76	0.75	0.71	0.68	0.72	0.69	0.84	0.92
103	7.266	52.793	77.43	**PHR**	0.89	0.83	0.89	0.92	0.88	0.95	0.86	0.89	1.01	0.86	0.90	0.83	0.96	0.94	0.88	0.87	0.90	0.90	0.89	0.86	0.83	0.86	0.84	0.97	1.04
145	5.706	32.557	77.99	**BWD**	0.71	0.63	0.72	0.74	0.69	0.78	0.68	0.71	0.86	0.67	0.72	0.63	0.79	0.77	0.70	0.68	0.72	0.72	0.72	0.67	0.64	0.68	0.65	0.81	0.89
175	7.207	51.941	78.25	**TYL**	0.76	0.69	0.76	0.79	0.74	0.82	0.73	0.76	0.90	0.72	0.77	0.69	0.84	0.82	0.75	0.73	0.77	0.77	0.77	0.72	0.69	0.73	0.70	0.85	0.93
257	6.657	44.319	78.45	**LBB**	0.67	0.59	0.68	0.71	0.65	0.74	0.64	0.67	0.83	0.63	0.69	0.59	0.76	0.74	0.66	0.64	0.68	0.68	0.68	0.63	0.60	0.64	0.60	0.78	0.86
166	8.204	67.298	78.46	**AUS**	0.83	0.76	0.83	0.86	0.81	0.89	0.80	0.83	0.96	0.79	0.84	0.76	0.90	0.88	0.82	0.80	0.84	0.83	0.83	0.79	0.77	0.80	0.77	0.91	0.99
112	6.440	41.471	78.47	**LRD**	0.80	0.74	0.81	0.83	0.79	0.87	0.78	0.81	0.94	0.77	0.82	0.74	0.88	0.86	0.80	0.78	0.82	0.81	0.81	0.77	0.74	0.78	0.75	0.89	0.97
168	6.681	44.637	79.04	**YKM**	0.74	0.66	0.74	0.77	0.72	0.81	0.71	0.74	0.88	0.70	0.75	0.66	0.82	0.80	0.73	0.71	0.75	0.75	0.74	0.70	0.67	0.71	0.68	0.83	0.91
196	6.882	47.364	79.13	**AMA**	0.72	0.64	0.73	0.75	0.70	0.79	0.69	0.72	0.87	0.68	0.73	0.64	0.80	0.78	0.71	0.70	0.73	0.73	0.73	0.68	0.65	0.69	0.66	0.82	0.90
130	6.186	38.266	79.30	**ATL**	0.76	0.68	0.76	0.79	0.74	0.82	0.73	0.76	0.90	0.72	0.77	0.68	0.84	0.82	0.75	0.73	0.77	0.76	0.76	0.72	0.69	0.73	0.70	0.85	0.93
140	6.378	40.674	79.38	**LFK**	0.75	0.68	0.76	0.79	0.74	0.82	0.72	0.76	0.90	0.72	0.77	0.68	0.83	0.81	0.75	0.73	0.76	0.76	0.76	0.72	0.69	0.73	0.70	0.85	0.93
141	6.378	40.674	79.45	**CRP**	0.75	0.68	0.76	0.78	0.74	0.82	0.72	0.75	0.89	0.72	0.77	0.68	0.83	0.81	0.74	0.73	0.76	0.76	0.76	0.71	0.69	0.72	0.69	0.85	0.93
165	6.043	36.519	79.61	**SJT**	0.71	0.63	0.71	0.74	0.69	0.78	0.67	0.71	0.86	0.67	0.72	0.63	0.79	0.77	0.70	0.68	0.72	0.72	0.71	0.67	0.64	0.68	0.64	0.81	0.89

225	6.443	41.506	79.89	**SAT**	0.68	0.60	0.69	0.72	0.66	0.75	0.65	0.68	0.83	0.64	0.69	0.60	0.77	0.74	0.67	0.65	0.69	0.69	0.69	0.64	0.61	0.65	0.61	0.78	0.87
146	5.865	34.401	80.40	**BRY**	0.72	0.64	0.72	0.75	0.70	0.79	0.69	0.72	0.86	0.68	0.73	0.64	0.80	0.78	0.71	0.69	0.73	0.73	0.72	0.68	0.65	0.69	0.65	0.82	0.90
175	5.815	33.811	81.30	**ODA**	0.69	0.61	0.69	0.72	0.67	0.76	0.65	0.69	0.84	0.65	0.70	0.60	0.77	0.75	0.68	0.66	0.70	0.70	0.69	0.64	0.61	0.65	0.62	0.79	0.87
103	6.650	44.223	81.59	**ELP**	0.84	0.78	0.85	0.87	0.83	0.90	0.81	0.84	0.97	0.81	0.85	0.78	0.91	0.89	0.83	0.82	0.85	0.85	0.85	0.81	0.78	0.82	0.79	0.93	1.00
106	7.757	60.166	82.25	**BMT**	0.92	0.86	0.92	0.95	0.91	0.97	0.90	0.92	1.04	0.89	0.93	0.86	0.99	0.97	0.91	0.90	0.93	0.93	0.93	0.89	0.87	0.90	0.87	1.00	1.07

Table 30: *t* – statistics for TxCAP for 2010 (an example)

	WFS	ABL	FTW	HOU	PAR	DAL	CHS	WAC	PHR	BWD	TYL	LBB	AUS	LRD	YKM	AMA	ATL	LFK	CRP	SJT	SAT	BRY	ODA	ELP	BMT
WFS		2.503276	2.622518	2.541211	2.755515	2.508938	3.412474	3.764957	3.771094	5.521741	5.513003	6.524752	5.309493	5.462224	6.738898	7.019628	6.907752	7.0421	7.148793	7.838591	8.558766	8.834059	10.52839	8.941141	8.888135
ABL	2.503276		0.425899	0.413944	0.499047	0.476791	1.187098	1.677457	2.014558	3.531128	3.635874	4.575538	3.55317	3.677601	4.951359	5.233711	5.173028	5.317116	5.432769	6.127096	6.903344	7.256106	9.140237	7.509999	7.533053
FTW	2.622518	0.425899		0.004426	0.050364	0.080857	0.649278	1.116985	1.542427	2.710458	2.884703	3.543859	2.901119	2.988083	4.024668	4.240168	4.261193	4.385371	4.486227	4.994305	5.594308	6.019965	7.570257	6.547317	6.701694
HOU	2.541211	0.413944	0.004426		0.044096	0.074489	0.621746	1.076252	1.502497	2.608478	2.788946	3.398173	2.819	2.89941	3.885885	4.088008	4.121209	4.240627	4.33776	4.809251	5.372562	5.803557	7.276972	6.372801	6.550765
PAR	2.755515	0.499047	0.050364	0.044096		0.036502	0.618323	1.101042	1.533729	2.750976	2.921962	3.624808	2.928906	3.021005	4.102086	4.329732	4.340524	4.469218	4.573576	5.115091	5.749983	6.171349	7.795747	6.662479	6.797291
DAL	2.508938	0.476791	0.080857	0.074489	0.036502		0.513154	0.95318	1.388739	2.405533	2.596169	3.139094	2.646967	2.717894	3.637436	3.822125	3.872004	3.985079	4.077418	4.501573	5.018801	5.456386	6.833684	6.080917	6.2917
CHS	3.131774	1.06837	0.596817	0.574605	0.565336	0.477399		0.477832	0.992228	1.97536	2.193402	2.730034	2.269637	2.336085	3.271744	3.460269	3.521027	3.638164	3.734015	4.167658	4.706048	5.167392	6.610157	5.824514	6.047165
WAC	3.764956	1.677457	1.116985	1.076252	1.101042	0.95318	0.520335		0.6028	1.54275	1.792335	2.317851	1.897699	1.958765	2.908804	3.100807	3.174186	3.295508	3.395007	3.837469	4.397985	4.885146	6.397961	5.577141	5.812311
PHR	3.771093	2.014558	1.542427	1.502497	1.533729	1.388739	1.053966	0.6028		0.652588	0.917945	1.237805	1.080918	1.111314	1.830132	1.963928	2.083443	2.181846	2.263558	2.549325	2.952409	3.440239	4.607601	4.291462	4.636375
BWD	5.521741	3.531128	2.710458	2.608478	2.750976	2.405533	2.171885	1.54275	0.652588		0.367782	0.736744	0.598926	0.627444	1.505711	1.677418	1.820321	1.943753	2.046253	2.431614	2.978162	3.560771	5.122108	4.457747	4.784543
TYL	5.513003	3.635874	2.884703	2.788946	2.921962	2.596169	2.383096	1.792335	0.917945	0.367782		0.289983	0.250374	0.267348	1.051589	1.198902	1.360041	1.473733	1.568637	1.886741	2.362677	2.946357	4.349961	3.918472	4.294542
LBB	6.524752	4.575538	3.543859	3.398173	3.624808	3.139094	3.034669	2.317851	1.237805	0.736744	0.289983		0.014688	0.026758	0.891414	1.05843	1.239773	1.367958	1.475035	1.847699	2.411073	3.054526	4.707115	4.048271	4.41045
AUS	5.309493	3.55317	2.901119	2.819	2.928906	2.646967	2.433714	1.897699	1.080918	0.598926	0.250374	0.014688		0.009705	0.706636	0.832843	0.99239	1.102364	1.18878	1.450474	1.860947	2.423142	3.664454	3.425055	3.835082
LRD	5.462224	3.677601	2.988083	2.89941	3.021005	2.717894	2.514432	1.958765	1.111314	0.627444	0.267348	0.026758	0.009705		0.715175	0.845492	1.014826	1.120776	1.209539	1.481811	1.907497	2.481427	3.765584	3.489929	3.89743
YKM	6.738898	4.951359	4.024668	3.885885	4.102086	3.637436	3.571563	2.908804	1.830132	1.505711	1.051589	0.891414	0.706636	0.715175		0.127834	0.343409	0.456872	0.552588	0.815919	1.26745	1.922477	3.330732	3.059172	3.509976
AMA	7.019628	5.233711	4.240168	4.088008	4.329732	3.822125	3.792684	3.100807	1.963928	1.677418	1.198902	1.05843	0.832843	0.845492	0.127834		0.226658	0.342264	0.439923	0.703021	1.163237	1.838515	3.283499	3.002352	3.460529
ATL	6.907752	5.173028	4.261193	4.121209	4.340524	3.872004	3.826897	3.174186	2.083443	1.820321	1.360041	1.239773	0.99239	1.014826	0.343409	0.226658		0.109499	0.202198	0.435049	0.857548	1.516768	2.863318	2.695906	3.174336
LFK	7.042099	5.317116	4.385371	4.240627	4.469218	3.985079	3.956421	3.295508	2.181846	1.943753	1.473733	1.367958	1.102364	1.120776	0.456872	0.342264	0.109499		0.092811	0.319622	0.739489	1.406824	2.754215	2.604356	3.091004
CRP	7.148793	5.432769	4.486227	4.33776	4.573576	4.077418	4.061893	3.395007	2.263558	2.046253	1.568637	1.475035	1.18878	1.209539	0.552588	0.439923	0.202198	0.092811		0.221358	0.638407	1.312036	2.658344	2.524741	3.018395
SJT	7.838591	6.127096	4.994305	4.809251	5.115091	4.501573	4.167658	3.837469	2.549325	2.431614	1.886741	1.847699	1.450474	1.481811	0.815919	0.703021	0.435049	0.319622	0.221358		0.419798	0.869547	2.454242	2.366054	2.796178
SAT	8.558766	6.903344	5.594308	5.372562	5.749983	5.018801	4.706048	4.397985	2.952409	2.978162	2.362677	2.411073	1.860947	1.907497	1.26745	1.163237	0.857548	0.739489	0.638407	0.419798		0.452109	2.035439	1.946257	2.376995
BRY	8.834059	7.256106	5.943008	5.803557	6.171349	5.456386	5.167392	4.885146	3.440239	3.560771	2.946357	3.054526	2.423142	2.481427	1.922477	1.838515	1.516768	1.406824	1.312036	0.869547	0.452109		1.582911	1.493725	1.924869
ODA	10.52839	9.140237	7.570257	7.276972	7.795747	6.833684	6.610157	6.397961	4.607601	5.122108	4.349961	4.707115	3.664454	3.765584	3.330732	3.283499	2.863318	2.754215	2.658344	2.454242	2.035439	1.582911		0.092811	0.342264
ELP	8.941141	7.509999	6.547317	6.372801	6.662479	6.080917	5.824514	5.577141	4.291462	4.457747	3.918472	4.048271	3.425055	3.489929	3.059172	3.002352	2.695906	2.604356	2.524741	2.366054	1.946257	1.493725	0.092811		0.249453
BMT	8.888135	7.533053	6.701694	6.550765	6.797291	6.2917	6.047165	5.812311	4.636375	4.784543	4.294542	4.41045	3.835082	3.89743	3.509976	3.460529	3.174336	3.091004	3.018395	2.796178	2.376995	1.924869	0.342264	0.249453	

SJT	7.838591	6.127096	4.994305	4.809251	5.115091	4.501573	4.585077	3.837469	2.549325	2.431614	1.886741	1.847699	1.450474	1.481811	0.815919	0.703021	0.435049	0.319622	0.221358		0.441093	1.171313	2.620066	2.455865	2.966267
SAT	8.5587663	6.903344	5.594308	5.372562	5.749983	5.018801	5.216836	4.397985	2.952409	2.978162	2.362677	2.411073	1.860947	1.907497	1.26745	1.163237	0.857548	0.739489	0.638407	0.441093		0.788087	2.287702	2.169869	2.714067
BRY	8.8340595	7.256106	6.019965	5.803557	6.171349	5.456386	5.669892	4.885146	3.440239	3.560771	2.946357	3.054526	2.423142	2.481427	1.922477	1.838515	1.516768	1.406824	1.312036	1.171313	0.788087		1.366921	1.458354	2.056292
ODA	10.528395	9.140237	7.570257	7.276972	7.795747	6.833684	7.313657	6.397961	4.60761	5.122108	4.349961	4.707115	3.664454	3.765584	3.33072	3.283499	2.863318	2.754215	2.658344	2.620066	2.287702	1.366921		0.372733	1.086597
ELP	8.9411412	7.509999	6.547317	6.372801	6.662479	6.080917	6.230885	5.577141	4.291462	4.457747	3.918472	4.048271	3.4250 5	3.489929	3.059172	3.002352	2.695906	2.604 6	2.524741	2.455865	2.169869	1.458354	0.372733		0.654684
BMT	8.8881351	7.533053	6.701694	6.550765	6.797291	6.2917	6.398309	5.812311	4.636375	4.784543	4.294542	4.410 5	3.835082	3.897 3	3.509976	3.460529	3.174336	3.091004	3.018395	2.966267	2.714067	2.056292	1.086597	0.654684	

Appendix E

Results of *t*-test at 95 percent confidence level

Table 31: Results of *t*-test for TxCAP for 2010 at 95% Confidence level – Are mean scores significantly different ?

District		WFS	ABL	FTW	HOU	PAR	DAL	CHS	WAC	PHR	BWD	TYL	LBB	AUS	LRD	YKM	AMA	ATL	LFK	CRP	SJT	SAT	BRY	ODA	ELP	BMT
	Mean	**74.08**	**75.76**	**76.05**	**76.05**	**76.08**	**76.11**	**76.52**	**76.89**	**77.43**	**77.99**	**78.25**	**78.45**	**78.46**	**78.47**	**79.04**	**79.13**	**79.30**	**79.38**	**79.45**	**79.61**	**79.89**	**80.40**	**81.30**	**81.59**	**82.25**
WFS	**74.08**		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	**75.76**	Yes		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**76.05**	Yes	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**76.05**	Yes	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**76.08**	Yes	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**76.11**	Yes	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CHS	**76.52**	Yes	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	**76.89**	Yes	No	No	No	No	No	No		No	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	**77.43**	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BWD	**77.99**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	**78.25**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
LBB	**78.45**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
AUS	**78.46**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
LRD	**78.47**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
YKM	**79.04**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
AMA	**79.13**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes
ATL	**79.30**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes
LFK	**79.38**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes
CRP	**79.45**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes
SJT	**79.61**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	Yes	Yes	Yes
SAT	**79.89**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	Yes	Yes	Yes
BRY	**80.40**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	Yes
ODA	**81.30**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No
ELP	**81.59**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No
BMT	**82.25**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	

Table 32: Results of *t*-test for TxCAP for 2009 at 95% Confidence level – Are mean scores significantly different ?

District		LFK	YKM	WFS	ATL	PAR	FTW	TYL	AUS	CRP	SAT	HOU	DAL	ABL	WAC	BWD	CHS	AMA	BRY	LRD	LBB	BMT	ELP	PHR	SJT	ODA
	Mean	71.94	73.70	73.78	73.85	73.90	73.97	75.13	75.62	75.69	75.77	76.52	76.86	77.04	77.43	77.62	77.86	77.96	77.99	78.42	78.50	78.59	78.90	79.49	79.97	83.12
LFK	**71.94**		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YKM	**73.70**	Yes		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**73.78**	Yes	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATL	**73.85**	Yes	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**73.90**	Yes	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**73.97**	Yes	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	**75.13**	Yes	Yes	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**75.62**	Yes	Yes	No	Yes	Yes	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**75.69**	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**75.77**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**76.52**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**76.86**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
ABL	**77.04**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes
WAC	**77.43**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes
BWD	**77.62**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
CHS	**77.86**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes
AMA	**77.96**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes
BRY	**77.99**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes
LRD	**78.42**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	Yes
LBB	**78.50**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	Yes	Yes
BMT	**78.59**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	Yes
ELP	**78.90**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	Yes
PHR	**79.49**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	Yes
SJT	**79.97**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No		Yes
ODA	**83.12**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Table 33: Results of *t*-test for TxCAP for 2008 at 95% Confidence level – Are mean scores significantly different ?

District		PAR	CRP	HOU	DAL	LRD	FTW	LFK	SAT	LBB	PHR	AUS	WFS	WAC	YKM	BMT	AMA	BWD	TYL	BRY	CHS	SJT	ODA	ABL	ATL	ELP
	Mean	73.13	73.23	74.47	75.96	77.14	77.45	77.46	77.60	78.04	78.32	78.43	79.06	79.67	79.73	79.78	79.79	79.89	80.03	81.82	82.18	82.30	82.48	83.27	83.52	84.09
PAR	**73.13**		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**73.23**	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**74.47**	No	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**75.96**	Yes	Yes	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LRD	**77.14**	Yes	Yes	Yes	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**77.45**	Yes	Yes	Yes	No	No		No	No	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LFK	**77.46**	Yes	Yes	Yes	No	No	No		No	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**77.60**	Yes	Yes	Yes	No	No	No	No		No	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LBB	**78.04**	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	**78.32**	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**78.43**	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**79.06**	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	**79.67**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YKM	**79.73**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BMT	**79.78**	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
AMA	**79.79**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BWD	**79.89**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	**80.03**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BRY	**81.82**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes		No	No	No	No	No	No	Yes
CHS	**82.18**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No		No	No	No	No	No	No
SJT	**82.30**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	Yes
ODA	**82.48**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No
ABL	**83.27**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No
ATL	**83.52**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No
ELP	**84.09**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No		

Table 34: Results for TxCAP for 2008-2010 combined at 95% Confidence level – Are mean scores significantly different ?

District		PAR	LFK	FTW	WFS	YKM	CRP	HOU	AUS	DAL	WAC	AMA	TYL	SAT	ATL	LRD	LBB	BWD	BMT	ABL	PHR	BRY	CHS	ELP	SJT	ODA
	Mean	**70.31**	**75.70**	**75.78**	**76.34**	**76.50**	**76.56**	**76.90**	**77.17**	**77.27**	**77.57**	**77.66**	**77.67**	**77.68**	**77.82**	**78.28**	**78.39**	**78.65**	**79.14**	**79.54**	**79.63**	**79.81**	**80.11**	**80.46**	**81.10**	**81.76**
PAR	**70.31**		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LFK	**75.70**	Yes		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**75.78**	Yes	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**76.34**	Yes	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YKM	**76.50**	Yes	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**76.56**	Yes	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**76.90**	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**77.17**	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**77.27**	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	**77.57**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AMA	**77.66**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	**77.67**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**77.68**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATL	**77.82**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LRD	**78.28**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LBB	**78.39**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BWD	**78.65**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
BMT	**79.14**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes
ABL	**79.54**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	Yes	Yes	Yes
PHR	**79.63**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	Yes	Yes	Yes
BRY	**79.81**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	Yes	Yes	Yes
CHS	**80.11**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	Yes	Yes	Yes
ELP	**80.46**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	Yes	Yes
SJT	**81.10**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No
ODA	**81.76**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		

Table 35: Results of *t*-test for PMIS for 2010 at 95% Confidence level – Are mean scores significantly different ?

District		WFS	DAL	FTW	WAC	BWD	ABL	TYL	HOU	PAR	LRD	AUS	AMA	LBB	ATL	YKM	CHS	SAT	PHR	CRP	SJT	BRY	LFK	ODA	ELP	BMT
	Mean	71.96	72.65	73.50	73.66	74.03	74.34	74.63	74.91	74.99	75.21	75.97	76.55	76.83	77.01	77.10	77.31	77.91	78.01	78.16	78.23	78.41	78.94	81.34	82.60	83.52
WFS	**71.96**		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**72.65**	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**73.50**	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	**73.66**	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BWD	**74.03**	Yes	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	**74.34**	Yes	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	**74.63**	Yes	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**74.91**	Yes	Yes	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**74.99**	Yes	Yes	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LRD	**75.21**	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**75.97**	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AMA	**76.55**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
LBB	**76.83**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
ATL	**77.01**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes
YKM	**77.10**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
CHS	**77.31**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes
SAT	**77.91**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes
PHR	**78.01**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes
CRP	**78.16**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes
SJT	**78.23**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	Yes	Yes	Yes
BRY	**78.41**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	Yes	Yes	Yes
LFK	**78.94**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		Yes	Yes	Yes
ODA	**81.34**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		No	No
ELP	**82.60**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No
BMT	**83.52**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	

Table 36: Results of *t*-test for PMIS for 2009 at 95% Confidence level – Are mean scores significantly different ?

District		LFK	PAR	YKM	ATL	WFS	TYL	FTW	AUS	BRY	SAT	CRP	DAL	HOU	ABL	WAC	BWD	AMA	LRD	SJT	CHS	ELP	BMT	LBB	PHR	ODA
	Mean	69.83	71.08	71.34	71.86	72.25	72.26	72.31	72.67	73.35	73.36	73.65	73.99	74.04	74.53	74.69	75.11	76.00	76.18	76.53	77.28	77.77	77.78	78.21	81.18	83.13
LFK	**69.83**		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**71.08**	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YKM	**71.34**	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATL	**71.86**	Yes	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**72.25**	Yes	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	**72.26**	Yes	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**72.31**	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**72.67**	Yes	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BRY	**73.35**	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**73.36**	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**73.65**	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**73.99**	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**74.04**	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	**74.53**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	**74.69**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BWD	**75.11**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
AMA	**76.00**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes
LRD	**76.18**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes
SJT	**76.53**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	Yes	Yes	Yes
CHS	**77.28**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	Yes	Yes
ELP	**77.77**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	Yes	Yes
BMT	**77.78**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	Yes	Yes
LBB	**78.21**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No		Yes	Yes
PHR	**81.18**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
ODA	**83.13**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Table 37: Results of *t*-test for PMIS for 2008 at 95% Confidence level – Are mean scores significantly different ?

District		PAR	CRP	DAL	LRD	LFK	AMA	LBB	FTW	AUS	PHR	HOU	YKM	SAT	WAC	BMT	TYL	WFS	BRY	BWD	CHS	ABL	SJT	ODA	ATL	ELP
	Mean	**70.38**	**71.72**	**73.01**	**74.66**	**75.28**	**75.53**	**75.66**	**76.92**	**77.01**	**77.06**	**77.17**	**77.48**	**77.57**	**77.72**	**78.52**	**78.55**	**79.12**	**80.21**	**80.30**	**81.27**	**81.78**	**81.79**	**82.01**	**82.36**	**84.96**
PAR	**70.38**		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**71.72**	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**73.01**	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LRD	**74.66**	Yes	Yes	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LFK	**75.28**	Yes	Yes	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AMA	**75.53**	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LBB	**75.66**	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**76.92**	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**77.01**	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	**77.06**	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**77.17**	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YKM	**77.48**	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**77.57**	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	**77.72**	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BMT	**78.52**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
TYL	**78.55**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**79.12**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes
BRY	**80.21**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	Yes
BWD	**80.30**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	Yes
CHS	**81.27**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No		No	No	No	No	Yes
ABL	**81.78**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	Yes
SJT	**81.79**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	Yes
ODA	**82.01**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	Yes
ATL	**82.36**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		Yes
ELP	**84.96**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Table 38: Results for PMIS for 2008,2009,2010 combined at 95% Confidence level – Are mean scores significantly different ?

District		PAR	DAL	FTW	WFS	CRP	LFK	AUS	TYL	YKM	WAC	LRD	HOU	AMA	SAT	BWD	ABL	ATL	LBB	BRY	CHS	SJT	PHR	BMT	ELP	ODA
	Mean	72.24	73.24	74.25	74.39	74.55	74.66	75.11	75.14	75.23	75.28	75.33	75.37	76.02	76.21	76.51	76.77	76.87	76.90	77.31	78.63	78.84	78.88	79.88	81.73	82.17
PAR	**72.24**		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**73.24**	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**74.25**	Yes	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**74.39**	Yes	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**74.55**	Yes	Yes	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LFK	**74.66**	Yes	Yes	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**75.11**	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	**75.14**	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YKM	**75.23**	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	**75.28**	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LRD	**75.33**	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**75.37**	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AMA	**76.02**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**76.21**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
BWD	**76.51**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
ABL	**76.77**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
ATL	**76.87**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes
LBB	**76.90**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	Yes	Yes	Yes	Yes	Yes	Yes
BRY	**77.31**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		Yes	Yes	Yes	Yes	Yes	Yes
CHS	**78.63**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		No	No	No	Yes	Yes
SJT	**78.84**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No	Yes	Yes
PHR	**78.88**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	Yes	Yes
BMT	**79.88**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		Yes	Yes
ELP	**81.73**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		No
ODA	**82.17**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	

Table 39: Results of *t*-test for TxTAP for 2010 at 95% Confidence level – Are mean scores significantly different ?

District		CHS	WFS	HOU	PHR	ABL	PAR	FTW	LBB	CRP	AMA	ELP	DAL	AUS	LRD	BMT	WAC	YKM	SJT	ATL	LFK	ODA	BRY	BWD	SAT	TYL
	Mean	**71.06**	**74.88**	**75.53**	**76.17**	**76.49**	**76.57**	**78.96**	**79.00**	**79.35**	**80.14**	**80.21**	**80.38**	**81.03**	**81.18**	**81.43**	**81.85**	**81.85**	**82.11**	**82.12**	**82.19**	**82.65**	**82.86**	**82.93**	**83.77**	**84.27**
CHS	**71.06**		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**74.88**	Yes		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**75.53**	Yes	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	**76.17**	Yes	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	**76.49**	Yes	No	No	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**76.57**	Yes	No	No	No	No		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**78.96**	Yes	Yes	Yes	Yes	Yes	Yes		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LBB	**79.00**	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**79.35**	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AMA	**80.14**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
ELP	**80.21**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
DAL	**80.38**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**81.03**	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No		No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
LRD	**81.18**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
BMT	**81.43**	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes
WAC	**81.85**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
YKM	**81.85**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes
SJT	**82.11**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes
ATL	**82.12**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes
LFK	**82.19**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes
ODA	**82.65**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No
BRY	**82.86**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No		No	No	No	No
BWD	**82.93**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No		No	No	No
SAT	**83.77**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No
TYL	**84.27**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		

Table 40: Results of *t*-test for TxTAP for 2009 at 95% Confidence level – Are mean scores significantly different ?

		FTW	YKM	CRP	LFK	WFS	CHS	PAR	LBB	HOU	PHR	ATL	ELP	ABL	SAT	BWD	AUS	TYL	AMA	DAL	WAC	BMT	LRD	ODA	BRY	SJT
	Mean	74.22	75.25	75.3	75.37	75.68	76.07	76.29	76.71	77.29	77.58	77.7	77.7	78.67	78.95	79.33	79.57	79.75	80.01	80.02	80.1	80.18	80.93	82.88	83.36	83.7
FTW	**74.22**		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YKM	**75.25**	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**75.3**	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LFK	**75.37**	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**75.68**	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CHS	**76.07**	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**76.29**	Yes	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LBB	**76.71**	Yes	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**77.29**	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	**77.58**	Yes	Yes	No	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATL	**77.7**	Yes	Yes	No	Yes	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ELP	**77.7**	Yes	Yes	No	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
ABL	**78.67**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
SAT	**78.95**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes
BWD	**79.33**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
AUS	**79.57**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes
TYL	**79.75**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes
AMA	**80.01**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes
DAL	**80.02**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes
WAC	**80.1**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	Yes	Yes	Yes
BMT	**80.18**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	Yes	Yes	Yes
LRD	**80.93**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	Yes
ODA	**82.88**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No
BRY	**83.36**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No
SJT	**83.7**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	

Table 41: Results of *t*-test for TxTAP for 2008 at 95% Confidence level – Are mean scores significantly different ?

District		HOU	CRP	SAT	DAL	PAR	BMT	LBB	FTW	AUS	BWD	WFS	CHS	ELP	LRD	YKM	ATL	ABL	LFK	SJT	WAC	ODA	AMA	PHR	BRY	TYL
	Mean	**68.08**	**72.02**	**74.75**	**77.06**	**77.32**	**77.55**	**77.70**	**77.91**	**78.02**	**78.13**	**78.19**	**78.23**	**79.20**	**80.30**	**81.51**	**81.63**	**81.94**	**82.21**	**82.36**	**82.50**	**82.89**	**83.14**	**83.22**	**84.30**	**85.05**
HOU	**68.08**		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**72.02**	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**74.75**	Yes	Yes		No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**77.06**	Yes	Yes	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**77.32**	Yes	Yes	Yes	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BMT	**77.55**	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LBB	**77.70**	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**77.91**	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**78.02**	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BWD	**78.13**	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**78.19**	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CHS	**78.23**	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ELP	**79.20**	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LRD	**80.30**	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
YKM	**81.51**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes
ATL	**81.63**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
ABL	**81.94**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes
LFK	**82.21**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	Yes
SJT	**82.36**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes
WAC	**82.50**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	Yes
ODA	**82.89**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No
AMA	**83.14**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No
PHR	**83.22**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No
BRY	**84.30**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No
TYL	**85.05**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		

Table 42: Results for TxTAP for 2008 - 2010 combined at 95% Confidence level – Are mean scores significantly different ?

District		HOU	CHS	CRP	WFS	PAR	FTW	LBB	PHR	ABL	ELP	DAL	SAT	YKM	AUS	BMT	LFK	BWD	ATL	LRD	AMA	WAC	SJT	ODA	TYL	BRY
	Mean	73.66	75.16	75.60	76.23	76.71	77.00	77.80	78.87	78.95	79.03	79.21	79.32	79.45	79.58	79.68	79.90	80.15	80.37	80.81	81.10	81.46	82.74	82.81	82.99	83.53
HOU	**73.66**		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CHS	**75.16**	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**75.60**	Yes	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**76.23**	Yes	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**76.71**	Yes	Yes	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**77.00**	Yes	Yes	No	No	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LBB	**77.80**	Yes	Yes	Yes	Yes	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	**78.87**	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	**78.95**	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ELP	**79.03**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**79.21**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**79.32**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YKM	**79.45**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**79.58**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
BMT	**79.68**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
LFK	**79.90**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes
BWD	**80.15**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes
ATL	**80.37**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes
LRD	**80.81**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes
AMA	**81.10**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	Yes	Yes	Yes	Yes
WAC	**81.46**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		Yes	Yes	Yes	Yes
SJT	**82.74**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		No	No	No
ODA	**82.81**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No
TYL	**82.99**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No
BRY	**83.53**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	

Table 43: Results of *t*-test for TxMAP for 2010 at 95% Confidence level – Are mean scores significantly different ?

District		WFS	PHR	PAR	ABL	LFK	HOU	FTW	CHS	WAC	DAL	SJT	TYL	ODA	YKM	SAT	BMT	LBB	ELP	AUS	ATL	BWD	CRP	BRY	LRD	AMA
	Mean	77.06	77.30	77.58	77.63	78.24	78.30	78.35	78.83	78.96	79.04	80.26	80.28	80.33	80.41	80.61	80.66	80.80	80.83	80.91	81.23	81.29	81.67	82.09	82.11	82.77
WFS	**77.06**		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	**77.30**	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**77.58**	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ABL	**77.63**	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LFK	**78.24**	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**78.30**	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**78.35**	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CHS	**78.83**	Yes	No	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	**78.96**	Yes	No	No	Yes	No	No	No	No		No	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**79.04**	Yes	No	No	Yes	No	No	No	No	No		No	No	No	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SJT	**80.26**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
TYL	**80.28**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
ODA	**80.33**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
YKM	**80.41**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes
SAT	**80.61**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
BMT	**80.66**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	No	No	No	Yes
LBB	**80.80**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	Yes	No	Yes
ELP	**80.83**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	No	Yes
AUS	**80.91**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	No	No	Yes
ATL	**81.23**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	No	No	Yes
BWD	**81.29**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No		No	No	No	Yes
CRP	**81.67**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No		No	No	No
BRY	**82.09**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No		No	No
LRD	**82.11**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No
AMA	**82.77**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	

Table 44: Results of *t*-test for TxMAP for 2009 at 95% Confidence level – Are mean scores significantly different ?

District		LFK	ATL	WFS	FTW	YKM	TYL	PAR	SAT	AUS	PHR	BMT	CRP	DAL	AMA	CHS	ABL	HOU	LBB	WAC	LRD	BWD	ELP	BRY	SJT	ODA
	Mean	73.19	74.60	75.05	76.58	76.61	76.83	77.00	77.65	77.91	77.93	78.89	79.34	79.52	79.86	80.02	80.12	80.16	80.16	80.22	80.47	80.68	81.56	82.13	83.21	83.29
LFK	**73.19**		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATL	**74.60**	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**75.05**	Yes	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**76.58**	Yes	Yes	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YKM	**76.61**	Yes	Yes	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	**76.83**	Yes	Yes	Yes	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**77.00**	Yes	Yes	Yes	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**77.65**	Yes	Yes	Yes	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**77.91**	Yes	Yes	Yes	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	**77.93**	Yes	Yes	Yes	No	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BMT	**78.89**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
CRP	**79.34**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
DAL	**79.52**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
AMA	**79.86**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes
CHS	**80.02**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	No	Yes	Yes	Yes
ABL	**80.12**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes
HOU	**80.16**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes
LBB	**80.16**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes
WAC	**80.22**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes
LRD	**80.47**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	No	Yes	Yes	Yes
BWD	**80.68**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		No	Yes	Yes	Yes
ELP	**81.56**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	Yes	No
BRY	**82.13**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No
SJT	**83.21**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No
ODA	**83.29**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	

Table 45: Results of *t*-test for TxMAP for 2008 at 95% Confidence level – Are mean scores significantly different ?

District		HOU	PAR	CRP	PHR	LFK	FTW	TYL	LRD	SAT	WFS	DAL	BWD	WAC	AUS	LBB	YKM	BRY	ODA	SJT	BMT	AMA	ELP	CHS	ABL	ATL
	Mean	74.25	76.06	76.54	77.16	78.87	79.07	79.13	79.18	79.55	79.55	80.14	80.37	81.04	81.07	82.24	82.28	82.85	82.97	83.11	83.38	84.65	85.89	86.33	86.65	86.71
HOU	**74.25**		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**76.06**	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**76.54**	Yes	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	**77.16**	Yes	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LFK	**78.87**	Yes	Yes	Yes	No		No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**79.07**	Yes	Yes	Yes	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	**79.13**	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LRD	**79.18**	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**79.55**	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**79.55**	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**80.14**	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BWD	**80.37**	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	**81.04**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**81.07**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
LBB	**82.24**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
YKM	**82.28**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes
BRY	**82.85**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes
ODA	**82.97**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes
SJT	**83.11**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	Yes	Yes	Yes	Yes	Yes
BMT	**83.38**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No		No	No	Yes	Yes	Yes
AMA	**84.65**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No	Yes	Yes
ELP	**85.89**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No
CHS	**86.33**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No
ABL	**86.65**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No
ATL	**86.71**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	

Table 46: Results for TxMAP for 2008 - 2010 combined at 95% Confidence level – Are mean scores significantly different ?

District		LFK	PAR	WFS	PHR	HOU	FTW	TYL	CRP	SAT	DAL	YKM	AUS	WAC	ATL	LRD	BWD	BMT	LBB	ABL	CHS	ODA	SJT	BRY	AMA	ELP
	Mean	76.75	77.03	77.20	77.49	77.57	77.99	78.71	79.22	79.25	79.56	79.72	79.89	80.03	80.60	80.62	80.78	81.00	81.07	81.32	81.75	82.21	82.21	82.36	82.40	82.72
LFK	**76.75**		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAR	**77.03**	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WFS	**77.20**	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PHR	**77.49**	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HOU	**77.57**	No	No	No	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FTW	**77.99**	Yes	Yes	No	No	No		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYL	**78.71**	Yes	Yes	Yes	Yes	Yes	No		No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CRP	**79.22**	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SAT	**79.25**	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DAL	**79.56**	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YKM	**79.72**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AUS	**79.89**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAC	**80.03**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATL	**80.60**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
LRD	**80.62**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
BWD	**80.78**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	No	No	Yes	Yes	Yes	Yes	Yes
BMT	**81.00**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	No	Yes	Yes	Yes	Yes	Yes
LBB	**81.07**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No	No	Yes	Yes	Yes	Yes	Yes
ABL	**81.32**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No		No	No	Yes	Yes	Yes	Yes
CHS	**81.75**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No		No	No	No	No	No
ODA	**82.21**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No	No
SJT	**82.21**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No		No	No	No
BRY	**82.36**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No		No	No
AMA	**82.40**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No		No
ELP	**82.72**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	

Appendix F

Current Level of Confidence

Table 47: Level of confidence for significant difference for TxCAP scores for 2010

District		WFS	ABL	FTW	HOU	PAR	DAL	CHS	WAC	PHR	BWD	TYL	LBB	AUS	LRD	YKM	AMA	ATL	LFK	CRP	SJT	SAT	BRY	ODA	ELP	BMT
	Mean	**74.08**	**75.76**	**76.05**	**76.05**	**76.08**	**76.11**	**76.52**	**76.89**	**77.43**	**77.99**	**78.25**	**78.45**	**78.46**	**78.47**	**79.04**	**79.13**	**79.30**	**79.38**	**79.45**	**79.61**	**79.89**	**80.40**	**81.30**	**81.59**	**82.25**
WFS	**74.08**		99%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ABL	**75.76**	99%		33%	32%	38%	37%	76%	91%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**76.05**	99%	33%		0%	4%	6%	48%	74%	88%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	**76.05**	99%	32%	0%		4%	6%	47%	72%	87%	99%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**76.08**	99%	38%	4%	4%		3%	46%	73%	87%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	**76.11**	99%	37%	6%	6%	3%		39%	66%	83%	98%	99%	100%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CHS	**76.52**	100%	76%	48%	47%	46%	39%		40%	71%	97%	98%	100%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WAC	**76.89**	100%	91%	74%	72%	73%	66%	40%		45%	88%	93%	98%	94%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	**77.43**	100%	95%	88%	87%	87%	83%	71%	45%		49%	64%	78%	72%	73%	93%	95%	96%	97%	98%	99%	100%	100%	100%	100%	100%
BWD	**77.99**	100%	100%	99%	99%	99%	98%	97%	88%	49%		29%	54%	45%	47%	87%	91%	93%	95%	96%	98%	100%	100%	100%	100%	100%
TYL	**78.25**	100%	100%	100%	99%	100%	99%	98%	93%	64%	29%		23%	20%	21%	71%	77%	83%	86%	88%	94%	98%	100%	100%	100%	100%
LBB	**78.45**	100%	100%	100%	100%	100%	100%	100%	98%	78%	54%	23%		1%	2%	63%	71%	78%	83%	86%	93%	98%	100%	100%	100%	100%
AUS	**78.46**	100%	100%	100%	99%	100%	99%	98%	94%	72%	45%	20%	1%		1%	52%	59%	68%	73%	76%	85%	94%	98%	100%	100%	100%
LRD	**78.47**	100%	100%	100%	100%	100%	99%	99%	95%	73%	47%	21%	2%	1%		52%	60%	69%	74%	77%	86%	94%	99%	100%	100%	100%
YKM	**79.04**	100%	100%	100%	100%	100%	100%	100%	100%	93%	87%	71%	63%	52%	52%		10%	27%	35%	42%	58%	79%	94%	100%	100%	100%
AMA	**79.13**	100%	100%	100%	100%	100%	100%	100%	100%	95%	91%	77%	71%	59%	60%	10%		18%	27%	34%	52%	75%	93%	100%	100%	100%
ATL	**79.30**	100%	100%	100%	100%	100%	100%	100%	100%	96%	93%	83%	78%	68%	69%	27%	18%		9%	16%	34%	61%	87%	100%	99%	100%
LFK	**79.38**	100%	100%	100%	100%	100%	100%	100%	100%	97%	95%	86%	83%	73%	74%	35%	27%	9%		7%	25%	54%	84%	99%	99%	100%
CRP	**79.45**	100%	100%	100%	100%	100%	100%	100%	100%	98%	96%	88%	86%	76%	77%	42%	34%	16%	7%		18%	48%	81%	99%	99%	100%
SJT	**79.61**	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	94%	93%	85%	86%	58%	52%	34%	25%	18%		34%	76%	99%	99%	100%
SAT	**79.89**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	94%	94%	79%	75%	61%	54%	48%	34%		57%	98%	97%	99%
BRY	**80.40**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	99%	94%	93%	87%	84%	81%	76%	57%		83%	85%	96%
ODA	**81.30**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	98%	83%		29%	72%
ELP	**81.59**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	97%	85%	29%		49%
BMT	**82.25**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	96%	72%	49%	

Table 48: Level of confidence for significant difference for TxCAP scores for 2009

District		LFK	YKM	WFS	ATL	PAR	FTW	TYL	AUS	CRP	SAT	HOU	DAL	ABL	WAC	BWD	CHS	AMA	BRY	LRD	LBB	BMT	ELP	PHR	SJT	ODA
	Mean	**71.94**	**73.70**	**73.78**	**73.85**	**73.90**	**73.97**	**75.13**	**75.62**	**75.69**	**75.77**	**76.52**	**76.86**	**77.04**	**77.43**	**77.62**	**77.86**	**77.96**	**77.99**	**78.42**	**78.50**	**78.59**	**78.90**	**79.49**	**79.97**	**83.12**
LFK	**71.94**		99%	97%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
YKM	**73.70**	99%		8%	18%	23%	28%	96%	98%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**73.78**	97%	8%		7%	11%	17%	89%	95%	95%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ATL	**73.85**	99%	18%	7%		6%	14%	94%	97%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**73.90**	99%	23%	11%	6%		8%	92%	97%	97%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**73.97**	99%	28%	17%	14%	8%		86%	94%	94%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
TYL	**75.13**	100%	96%	89%	94%	92%	86%		45%	49%	62%	91%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
AUS	**75.62**	100%	98%	95%	97%	97%	94%	45%		5%	14%	67%	87%	92%	98%	98%	99%	100%	100%	99%	100%	100%	100%	100%	100%	100%
CRP	**75.69**	100%	98%	95%	98%	97%	94%	49%	5%		7%	63%	84%	90%	97%	98%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%
SAT	**75.77**	100%	100%	98%	99%	99%	97%	62%	14%	7%		64%	87%	92%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	**76.52**	100%	100%	100%	100%	100%	100%	91%	67%	63%	64%		32%	48%	76%	81%	90%	93%	93%	94%	99%	97%	99%	100%	100%	100%
DAL	**76.86**	100%	100%	100%	100%	100%	100%	99%	87%	84%	87%	32%		21%	63%	71%	85%	90%	90%	92%	99%	96%	98%	100%	100%	100%
ABL	**77.04**	100%	100%	100%	100%	100%	100%	99%	92%	90%	92%	48%	21%		46%	59%	77%	84%	84%	88%	98%	94%	97%	100%	100%	100%
WAC	**77.43**	100%	100%	100%	100%	100%	100%	100%	98%	97%	99%	76%	63%	46%		23%	50%	62%	62%	75%	94%	86%	94%	100%	100%	100%
BWD	**77.62**	100%	100%	100%	100%	100%	100%	100%	98%	98%	99%	81%	71%	59%	23%		26%	37%	39%	61%	82%	75%	86%	98%	100%	100%
CHS	**77.86**	100%	100%	100%	100%	100%	100%	100%	99%	99%	100%	90%	85%	77%	50%	26%		12%	15%	47%	70%	63%	79%	97%	100%	100%
AMA	**77.96**	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	93%	90%	84%	62%	37%	12%		3%	40%	63%	57%	75%	96%	100%	100%
BRY	**77.99**	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	93%	90%	84%	62%	39%	15%	3%		37%	59%	54%	73%	95%	100%	100%
LRD	**78.42**	100%	100%	100%	100%	100%	100%	100%	99%	99%	100%	94%	92%	88%	75%	61%	47%	40%	37%		7%	14%	36%	74%	92%	100%
LBB	**78.50**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	98%	94%	82%	70%	63%	59%	7%		10%	39%	83%	99%	100%
BMT	**78.59**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97%	96%	94%	86%	75%	63%	57%	54%	14%	10%		25%	69%	92%	100%
ELP	**78.90**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	97%	94%	86%	79%	75%	73%	36%	39%	25%		49%	82%	100%
PHR	**79.49**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	97%	96%	95%	74%	83%	69%	49%		49%	100%
SJT	**79.97**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	92%	99%	92%	82%	49%		100%
ODA	**83.12**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

Table 49: Level of confidence for significant difference for TxCAP scores for 2008

District		PAR	CRP	HOU	DAL	LRD	FTW	LFK	SAT	LBB	PHR	AUS	WFS	WAC	YKM	BMT	AMA	BWD	TYL	BRY	CHS	SJT	ODA	ABL	ATL	ELP
	Mean	**73.13**	**73.23**	**74.47**	**75.96**	**77.14**	**77.45**	**77.46**	**77.60**	**78.04**	**78.32**	**78.43**	**79.06**	**79.67**	**79.73**	**79.78**	**79.79**	**79.89**	**80.03**	**81.82**	**82.18**	**82.30**	**82.48**	**83.27**	**83.52**	**84.09**
PAR	**73.13**		8%	79%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	**73.23**	8%		81%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	**74.47**	79%	81%		83%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	**75.96**	99%	99%	83%		71%	82%	81%	89%	97%	97%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LRD	**77.14**	100%	100%	99%	71%		22%	22%	35%	65%	74%	80%	92%	99%	99%	97%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**77.45**	100%	100%	99%	82%	22%		1%	12%	46%	59%	66%	86%	97%	98%	94%	98%	98%	99%	100%	100%	100%	100%	100%	100%	100%
LFK	**77.46**	100%	100%	99%	81%	22%	1%		11%	45%	58%	65%	85%	97%	98%	93%	98%	98%	99%	100%	100%	100%	100%	100%	100%	100%
SAT	**77.60**	100%	100%	100%	89%	35%	12%	11%		39%	55%	63%	86%	98%	99%	94%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
LBB	**78.04**	100%	100%	100%	97%	65%	46%	45%	39%		24%	34%	72%	94%	97%	88%	97%	97%	99%	100%	100%	100%	100%	100%	100%	100%
PHR	**78.32**	100%	100%	100%	97%	74%	59%	58%	55%	24%		9%	52%	84%	88%	77%	89%	90%	94%	100%	100%	100%	100%	100%	100%	100%
AUS	**78.43**	100%	100%	100%	98%	80%	66%	65%	63%	34%	9%		47%	83%	87%	75%	88%	89%	94%	100%	100%	100%	100%	100%	100%	100%
WFS	**79.06**	100%	100%	100%	99%	92%	86%	85%	86%	72%	52%	47%		46%	52%	44%	55%	59%	69%	100%	99%	100%	100%	100%	100%	100%
WAC	**79.67**	100%	100%	100%	100%	99%	97%	97%	98%	94%	84%	83%	46%		5%	8%	11%	19%	33%	99%	98%	100%	100%	100%	100%	100%
YKM	**79.73**	100%	100%	100%	100%	99%	98%	98%	99%	97%	88%	87%	52%	5%		4%	7%	15%	30%	99%	99%	100%	100%	100%	100%	100%
BMT	**79.78**	100%	100%	100%	100%	97%	94%	93%	94%	88%	77%	75%	44%	8%	4%		1%	7%	17%	93%	94%	98%	98%	100%	100%	100%
AMA	**79.79**	100%	100%	100%	100%	99%	98%	98%	99%	97%	89%	88%	55%	11%	7%	1%		9%	23%	99%	98%	100%	100%	100%	100%	100%
BWD	**79.89**	100%	100%	100%	100%	99%	98%	98%	99%	97%	90%	89%	59%	19%	15%	7%	9%		13%	98%	97%	100%	100%	100%	100%	100%
TYL	**80.03**	100%	100%	100%	100%	100%	99%	99%	100%	99%	94%	94%	69%	33%	30%	17%	23%	13%		97%	97%	100%	100%	100%	100%	100%
BRY	**81.82**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	93%	99%	98%	97%		28%	48%	55%	92%	93%	99%
CHS	**82.18**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	99%	94%	98%	97%	97%	28%		10%	22%	72%	77%	93%
SJT	**82.30**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%	100%	48%	10%		17%	79%	82%	97%
ODA	**82.48**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%	100%	55%	22%	17%		64%	71%	92%
ABL	**83.27**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	92%	72%	79%	64%		20%	65%
ATL	**83.52**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	93%	77%	82%	71%	20%		43%
ELP	**84.09**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	93%	97%	92%	65%	43%	

Table 50: Level of confidence for significant difference for TxCAP scores for 2008 2009, 2010

District		PAR	LFK	FTW	WFS	YKM	CRP	HOU	AUS	DAL	WAC	AMA	TYL	SAT	ATL	LRD	LBB	BWD	BMT	ABL	PHR	BRY	CHS	ELP	SJT	ODA
	Mean	**70.31**	**75.70**	**75.78**	**76.34**	**76.50**	**76.56**	**76.90**	**77.17**	**77.27**	**77.57**	**77.66**	**77.67**	**77.68**	**77.82**	**78.28**	**78.39**	**78.65**	**79.14**	**79.54**	**79.63**	**79.81**	**80.11**	**80.46**	**81.10**	**81.76**
PAR	**70.31**		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LFK	**75.70**	100%		32%	74%	88%	88%	97%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**75.78**	100%	32%		56%	76%	77%	94%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**76.34**	100%	74%	56%		24%	31%	69%	87%	92%	99%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
YKM	**76.50**	100%	88%	76%	24%		10%	59%	83%	90%	99%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	**76.56**	100%	88%	77%	31%	10%		48%	75%	83%	96%	98%	98%	98%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	**76.90**	100%	97%	94%	69%	59%	48%		39%	52%	84%	89%	88%	88%	89%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
AUS	**77.17**	100%	99%	98%	87%	83%	75%	39%		15%	60%	70%	70%	70%	74%	95%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	**77.27**	100%	100%	99%	92%	90%	83%	52%	15%		50%	61%	61%	61%	68%	94%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WAC	**77.57**	100%	100%	100%	99%	99%	96%	84%	60%	50%		17%	18%	19%	36%	83%	96%	98%	100%	100%	100%	100%	100%	100%	100%	100%
AMA	**77.66**	100%	100%	100%	99%	99%	98%	89%	70%	61%	17%		2%	3%	24%	77%	93%	97%	99%	100%	100%	100%	100%	100%	100%	100%
TYL	**77.67**	100%	100%	100%	99%	99%	98%	88%	70%	61%	18%	2%		0%	21%	75%	91%	97%	99%	100%	100%	100%	100%	100%	100%	100%
SAT	**77.68**	100%	100%	100%	99%	99%	98%	88%	70%	61%	19%	3%	0%		21%	75%	91%	97%	99%	100%	100%	100%	100%	100%	100%	100%
ATL	**77.82**	100%	100%	100%	99%	99%	97%	89%	74%	68%	36%	24%	21%	21%		56%	73%	87%	97%	100%	100%	100%	100%	100%	100%	100%
LRD	**78.28**	100%	100%	100%	100%	100%	100%	98%	95%	94%	83%	77%	75%	75%	56%		16%	50%	84%	98%	98%	100%	100%	100%	100%	100%
LBB	**78.39**	100%	100%	100%	100%	100%	100%	100%	99%	99%	96%	93%	91%	91%	73%	16%		47%	85%	99%	99%	100%	100%	100%	100%	100%
BWD	**78.65**	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	97%	97%	97%	87%	50%	47%		62%	95%	94%	99%	100%	100%	100%	100%
BMT	**79.14**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	97%	84%	85%	62%		55%	59%	78%	90%	98%	100%	100%
ABL	**79.54**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	99%	95%	55%		13%	44%	74%	93%	100%	100%
PHR	**79.63**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	99%	94%	59%	13%		27%	60%	86%	100%	100%
BRY	**79.81**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	78%	44%	27%		46%	81%	100%	100%
CHS	**80.11**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	90%	74%	60%	46%		47%	96%	100%
ELP	**80.46**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	93%	86%	81%	47%		83%	99%
SJT	**81.10**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	96%	83%		88%
ODA	**81.76**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	88%	

Table 51: Level of confidence for significant difference for PMIS scores for 2010

District		WFS	DAL	FTW	WAC	BWD	ABL	TYL	HOU	PAR	LRD	AUS	AMA	LBB	ATL	YKM	CHS	SAT	PHR	CRP	SJT	BRY	LFK	ODA	ELP	BMT
	Mean	**71.96**	**72.65**	**73.50**	**73.66**	**74.03**	**74.34**	**74.63**	**74.91**	**74.99**	**75.21**	**75.97**	**76.55**	**76.83**	**77.01**	**77.10**	**77.31**	**77.91**	**78.01**	**78.16**	**78.23**	**78.41**	**78.94**	**81.34**	**82.60**	**83.52**
WFS	**71.96**		49%	90%	93%	98%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	**72.65**	49%		59%	67%	84%	92%	93%	96%	98%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**73.50**	90%	59%		14%	46%	68%	75%	85%	90%	92%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WAC	**73.66**	93%	67%	14%		33%	57%	67%	79%	86%	88%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
BWD	**74.03**	98%	84%	46%	33%		31%	48%	66%	76%	79%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ABL	**74.34**	99%	92%	68%	57%	31%		25%	47%	58%	65%	91%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
TYL	**74.63**	99%	93%	75%	67%	48%	25%		21%	30%	42%	78%	95%	98%	98%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	**74.91**	100%	96%	85%	79%	66%	47%	21%		7%	23%	68%	91%	96%	96%	97%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%
PAR	**74.99**	100%	98%	90%	86%	76%	58%	30%	7%		18%	67%	93%	97%	97%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LRD	**75.21**	100%	98%	92%	88%	79%	65%	42%	23%	18%		52%	84%	92%	92%	94%	97%	100%	99%	100%	100%	100%	100%	100%	100%	100%
AUS	**75.97**	100%	100%	98%	97%	95%	91%	78%	68%	67%	52%		44%	62%	67%	73%	81%	95%	92%	97%	98%	98%	99%	100%	100%	100%
AMA	**76.55**	100%	100%	100%	100%	100%	99%	95%	91%	93%	84%	44%		26%	38%	46%	61%	89%	83%	93%	95%	96%	99%	100%	100%	100%
LBB	**76.83**	100%	100%	100%	100%	100%	100%	98%	96%	97%	92%	62%	26%		16%	25%	43%	82%	75%	89%	91%	93%	98%	100%	100%	100%
ATL	**77.01**	100%	100%	100%	100%	100%	100%	98%	96%	97%	92%	67%	38%	16%		7%	24%	67%	62%	77%	80%	85%	94%	100%	100%	100%
YKM	**77.10**	100%	100%	100%	100%	100%	100%	99%	97%	98%	94%	73%	46%	25%	7%		19%	65%	60%	76%	79%	84%	94%	100%	100%	100%
CHS	**77.31**	100%	100%	100%	100%	100%	100%	99%	99%	99%	97%	81%	61%	43%	24%	19%		51%	48%	65%	70%	77%	90%	100%	100%	100%
SAT	**77.91**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	95%	89%	82%	67%	65%	51%		7%	23%	29%	43%	73%	100%	100%	100%
PHR	**78.01**	100%	100%	100%	100%	100%	100%	100%	99%	100%	99%	92%	83%	75%	62%	60%	48%	7%		12%	16%	29%	59%	100%	100%	100%
CRP	**78.16**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97%	93%	89%	77%	76%	65%	23%	12%		6%	21%	58%	100%	100%	100%
SJT	**78.23**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	95%	91%	80%	79%	70%	29%	16%	6%		16%	55%	100%	100%	100%
BRY	**78.41**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	96%	93%	85%	84%	77%	43%	29%	21%	16%		42%	100%	100%	100%
LFK	**78.94**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	98%	94%	94%	90%	73%	59%	58%	55%	42%		99%	100%	100%
ODA	**81.34**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%		85%	94%
ELP	**82.60**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	85%		54%
BMT	**83.52**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94%	54%	

Table 52: Level of confidence for significant difference for PMIS scores for 2009

District		LFK	PAR	YKM	ATL	WFS	TYL	FTW	AUS	BRY	SAT	CRP	DAL	HOU	ABL	WAC	BWD	AMA	LRD	SJT	CHS	ELP	BMT	LBB	PHR	ODA
	Mean	**69.83**	**71.08**	**71.34**	**71.86**	**72.25**	**72.26**	**72.31**	**72.67**	**73.35**	**73.36**	**73.65**	**73.99**	**74.04**	**74.53**	**74.69**	**75.11**	**76.00**	**76.18**	**76.53**	**77.28**	**77.77**	**77.78**	**78.21**	**81.18**	**83.13**
LFK	**69.83**		83%	91%	98%	97%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**71.08**	83%		24%	65%	72%	81%	80%	89%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
YKM	**71.34**	91%	24%		49%	62%	71%	70%	83%	98%	98%	98%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ATL	**71.86**	98%	65%	49%		29%	36%	37%	59%	91%	91%	92%	99%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**72.25**	97%	72%	62%	29%		0%	4%	27%	67%	67%	74%	89%	85%	96%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
TYL	**72.26**	99%	81%	71%	36%	0%		4%	31%	75%	75%	80%	94%	90%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**72.31**	99%	80%	70%	37%	4%	4%		25%	69%	69%	76%	91%	87%	97%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
AUS	**72.67**	99%	89%	83%	59%	27%	31%	25%		49%	49%	60%	81%	76%	93%	97%	98%	100%	99%	100%	100%	100%	100%	100%	100%	100%
BRY	**73.35**	100%	99%	98%	91%	67%	75%	69%	49%		1%	21%	51%	47%	79%	88%	93%	100%	98%	100%	100%	100%	100%	100%	100%	100%
SAT	**73.36**	100%	99%	98%	91%	67%	75%	69%	49%	1%		20%	50%	46%	78%	88%	93%	100%	98%	100%	100%	100%	100%	100%	100%	100%
CRP	**73.65**	100%	99%	98%	92%	74%	80%	76%	60%	21%	20%		26%	25%	59%	70%	82%	98%	94%	99%	100%	100%	100%	100%	100%	100%
DAL	**73.99**	100%	100%	100%	99%	89%	94%	91%	81%	51%	50%	26%		3%	45%	61%	77%	98%	93%	100%	100%	100%	100%	100%	100%	100%
HOU	**74.04**	100%	100%	99%	97%	85%	90%	87%	76%	47%	46%	25%	3%		35%	49%	68%	94%	89%	98%	100%	100%	100%	100%	100%	100%
ABL	**74.53**	100%	100%	100%	100%	96%	99%	97%	93%	79%	78%	59%	45%	35%		15%	46%	91%	83%	98%	100%	100%	100%	100%	100%	100%
WAC	**74.69**	100%	100%	100%	100%	98%	100%	99%	97%	88%	88%	70%	61%	49%	15%		39%	92%	82%	98%	100%	100%	100%	100%	100%	100%
BWD	**75.11**	100%	100%	100%	100%	99%	100%	99%	98%	93%	93%	82%	77%	68%	46%	39%		69%	62%	89%	98%	99%	99%	100%	100%	100%
AMA	**76.00**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	94%	91%	92%	69%		13%	49%	88%	92%	92%	100%	100%	100%
LRD	**76.18**	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	94%	93%	89%	83%	82%	62%	13%		24%	65%	78%	78%	93%	100%	100%
SJT	**76.53**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	98%	98%	98%	89%	49%	24%		63%	78%	78%	97%	100%	100%
CHS	**77.28**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	88%	65%	63%		37%	37%	77%	100%	100%
ELP	**77.77**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	92%	78%	78%	37%		0%	35%	100%	100%
BMT	**77.78**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	92%	78%	78%	37%	0%		34%	100%	100%
LBB	**78.21**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	93%	97%	77%	35%	34%		100%	100%
PHR	**81.18**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		96%
ODA	**83.13**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	96%	

Table 53: Level of confidence for significant difference for PMIS scores for 2008

District		PAR	CRP	DAL	LRD	LFK	AMA	LBB	FTW	AUS	PHR	HOU	YKM	SAT	WAC	BMT	TYL	WFS	BRY	BWD	CHS	ABL	SJT	ODA	ATL	ELP
	Mean	**70.38**	**71.72**	**73.01**	**74.66**	**75.28**	**75.53**	**75.66**	**76.92**	**77.01**	**77.06**	**77.17**	**77.48**	**77.57**	**77.72**	**78.52**	**78.55**	**79.12**	**80.21**	**80.30**	**81.27**	**81.78**	**81.79**	**82.01**	**82.36**	**84.96**
PAR	**70.38**		75%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	**71.72**	75%		67%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	**73.01**	95%	67%		74%	88%	95%	96%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LRD	**74.66**	100%	98%	74%		34%	51%	58%	90%	93%	91%	94%	97%	98%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LFK	**75.28**	100%	100%	88%	34%		17%	25%	78%	83%	80%	86%	93%	94%	94%	97%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
AMA	**75.53**	100%	100%	95%	51%	17%		9%	75%	82%	77%	85%	93%	94%	94%	97%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LBB	**75.66**	100%	100%	96%	58%	25%	9%		71%	79%	74%	82%	92%	93%	93%	96%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**76.92**	100%	100%	99%	90%	78%	75%	71%		5%	8%	15%	35%	40%	46%	71%	80%	89%	99%	99%	100%	100%	100%	100%	100%	100%
AUS	**77.01**	100%	100%	100%	93%	83%	82%	79%	5%		3%	11%	33%	38%	45%	71%	82%	90%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	**77.06**	100%	100%	99%	91%	80%	77%	74%	8%	3%		6%	26%	31%	38%	65%	75%	86%	99%	99%	100%	100%	100%	100%	100%	100%
HOU	**77.17**	100%	100%	100%	94%	86%	85%	82%	15%	11%	6%		22%	27%	35%	65%	76%	87%	99%	99%	100%	100%	100%	100%	100%	100%
YKM	**77.48**	100%	100%	100%	97%	93%	93%	92%	35%	33%	26%	22%		6%	16%	54%	66%	81%	99%	99%	100%	100%	100%	100%	100%	100%
SAT	**77.57**	100%	100%	100%	98%	94%	94%	93%	40%	38%	31%	27%	6%		10%	50%	62%	78%	99%	99%	100%	100%	100%	100%	100%	100%
WAC	**77.72**	100%	100%	100%	98%	94%	94%	93%	46%	45%	38%	35%	16%	10%		41%	51%	71%	97%	97%	99%	100%	100%	100%	100%	100%
BMT	**78.52**	100%	100%	100%	99%	97%	97%	96%	71%	71%	65%	65%	54%	50%	41%		2%	30%	78%	79%	94%	98%	98%	99%	99%	100%
TYL	**78.55**	100%	100%	100%	100%	99%	99%	99%	80%	82%	75%	76%	66%	62%	51%	2%		34%	86%	88%	97%	100%	100%	100%	100%	100%
WFS	**79.12**	100%	100%	100%	100%	99%	100%	99%	89%	90%	86%	87%	81%	78%	71%	30%	34%		62%	65%	89%	97%	98%	98%	98%	100%
BRY	**80.21**	100%	100%	100%	100%	100%	100%	100%	99%	100%	99%	99%	99%	99%	97%	78%	86%	62%		7%	64%	87%	89%	91%	93%	100%
BWD	**80.30**	100%	100%	100%	100%	100%	100%	100%	99%	100%	99%	99%	99%	99%	97%	79%	88%	65%	7%		58%	83%	86%	88%	91%	100%
CHS	**81.27**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	94%	97%	89%	64%	58%		34%	36%	46%	60%	100%
ABL	**81.78**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	100%	97%	87%	83%	34%		1%	17%	37%	100%
SJT	**81.79**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	100%	98%	89%	86%	36%	1%		17%	38%	100%
ODA	**82.01**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	98%	91%	88%	46%	17%	17%		23%	99%
ATL	**82.36**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	98%	93%	91%	60%	37%	38%	23%		97%
ELP	**84.96**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	97%	

Table 54: Level of confidence for significant difference for PMIS scores for 2008, 2009, 2010

District		PAR	DAL	FTW	WFS	CRP	LFK	AUS	TYL	YKM	WAC	LRD	HOU	AMA	SAT	BWD	ABL	ATL	LBB	BRY	CHS	SJT	PHR	BMT	ELP	ODA
	Mean	**72.24**	**73.24**	**74.25**	**74.39**	**74.55**	**74.66**	**75.11**	**75.14**	**75.23**	**75.28**	**75.33**	**75.37**	**76.02**	**76.21**	**76.51**	**76.77**	**76.87**	**76.90**	**77.31**	**78.63**	**78.84**	**78.88**	**79.88**	**81.73**	**82.17**
PAR	**72.24**		89%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	**73.24**	89%		87%	90%	95%	96%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**74.25**	100%	87%		16%	36%	46%	81%	84%	89%	90%	88%	91%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**74.39**	100%	90%	16%		18%	30%	70%	73%	80%	82%	80%	84%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	**74.55**	100%	95%	36%	18%		13%	61%	64%	73%	76%	73%	78%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LFK	**74.66**	100%	96%	46%	30%	13%		50%	53%	63%	67%	64%	70%	97%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
AUS	**75.11**	100%	99%	81%	70%	61%	50%		3%	15%	21%	24%	30%	87%	92%	97%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
TYL	**75.14**	100%	100%	84%	73%	64%	53%	3%		12%	18%	21%	27%	87%	93%	98%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
YKM	**75.23**	100%	100%	89%	80%	73%	63%	15%	12%		7%	12%	18%	85%	92%	97%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
WAC	**75.28**	100%	100%	90%	82%	76%	67%	21%	18%	7%		6%	11%	82%	90%	97%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
LRD	**75.33**	100%	100%	88%	80%	73%	64%	24%	21%	12%	6%		5%	72%	82%	92%	97%	97%	99%	100%	100%	100%	100%	100%	100%	100%
HOU	**75.37**	100%	100%	91%	84%	78%	70%	30%	27%	18%	11%	5%		72%	83%	93%	98%	98%	99%	100%	100%	100%	100%	100%	100%	100%
AMA	**76.02**	100%	100%	100%	99%	99%	97%	87%	87%	85%	82%	72%	72%		27%	62%	83%	84%	91%	98%	100%	100%	100%	100%	100%	100%
SAT	**76.21**	100%	100%	100%	99%	99%	98%	92%	93%	92%	90%	82%	83%	27%		39%	67%	71%	80%	94%	100%	100%	100%	100%	100%	100%
BWD	**76.51**	100%	100%	100%	100%	100%	100%	97%	98%	97%	97%	92%	93%	62%	39%		35%	44%	53%	83%	100%	100%	100%	100%	100%	100%
ABL	**76.77**	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	97%	98%	83%	67%	35%		14%	19%	65%	100%	100%	100%	100%	100%	100%
ATL	**76.87**	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	97%	98%	84%	71%	44%	14%		3%	51%	99%	100%	100%	100%	100%	100%
LBB	**76.90**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	91%	80%	53%	19%	3%		55%	100%	100%	100%	100%	100%	100%
BRY	**77.31**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	94%	83%	65%	51%	55%		97%	99%	98%	100%	100%	100%
CHS	**78.63**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	97%		29%	30%	91%	100%	100%
SJT	**78.84**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	29%		6%	86%	100%	100%
PHR	**78.88**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	30%	6%		80%	100%	100%
BMT	**79.88**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	91%	86%	80%		98%	100%
ELP	**81.73**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%		54%
ODA	**82.17**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	54%	

Table 55: Level of confidence for significant difference for TxTAP scores for 2010

District		CHS	WFS	HOU	PHR	ABL	PAR	FTW	LBB	CRP	AMA	ELP	DAL	AUS	LRD	BMT	WAC	YKM	SJT	ATL	LFK	ODA	BRY	BWD	SAT	TYL
	Mean	**71.06**	**74.88**	**75.53**	**76.17**	**76.49**	**76.57**	**78.96**	**79.00**	**79.35**	**80.14**	**80.21**	**80.38**	**81.03**	**81.18**	**81.43**	**81.85**	**81.85**	**82.11**	**82.12**	**82.19**	**82.65**	**82.86**	**82.93**	**83.77**	**84.27**
CHS	**71.06**		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**74.88**	100%		41%	65%	87%	87%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	**75.53**	100%	41%		36%	63%	64%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	**76.17**	100%	65%	36%		20%	24%	97%	98%	97%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ABL	**76.49**	100%	87%	63%	20%		7%	99%	100%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**76.57**	100%	87%	64%	24%	7%		98%	99%	98%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**78.96**	100%	100%	100%	97%	99%	98%		3%	26%	73%	63%	80%	94%	92%	95%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%
LBB	**79.00**	100%	100%	100%	98%	100%	99%	3%		25%	76%	64%	82%	96%	93%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	**79.35**	100%	100%	100%	97%	99%	98%	26%	25%		50%	44%	60%	83%	82%	87%	96%	96%	98%	98%	99%	100%	100%	100%	100%	100%
AMA	**80.14**	100%	100%	100%	100%	100%	100%	73%	76%	50%		4%	17%	58%	59%	69%	88%	89%	94%	93%	95%	99%	99%	99%	100%	100%
ELP	**80.21**	100%	100%	100%	99%	99%	99%	63%	64%	44%	4%		9%	43%	47%	57%	75%	76%	83%	83%	85%	93%	94%	94%	99%	100%
DAL	**80.38**	100%	100%	100%	100%	100%	100%	80%	82%	60%	17%	9%		43%	46%	58%	80%	81%	88%	88%	90%	97%	97%	97%	100%	100%
AUS	**81.03**	100%	100%	100%	100%	100%	100%	94%	96%	83%	58%	43%	43%		9%	25%	53%	54%	68%	67%	72%	89%	91%	91%	100%	100%
LRD	**81.18**	100%	100%	100%	100%	100%	100%	92%	93%	82%	59%	47%	46%	9%		14%	39%	40%	54%	54%	58%	78%	81%	82%	97%	99%
BMT	**81.43**	100%	100%	100%	100%	100%	100%	95%	96%	87%	69%	57%	58%	25%	14%		25%	26%	41%	41%	46%	70%	74%	75%	96%	98%
WAC	**81.85**	100%	100%	100%	100%	100%	100%	99%	100%	96%	88%	75%	80%	53%	39%	25%		0%	19%	19%	25%	57%	65%	66%	95%	98%
YKM	**81.85**	100%	100%	100%	100%	100%	100%	99%	100%	96%	89%	76%	81%	54%	40%	26%	0%		19%	20%	25%	58%	66%	67%	96%	99%
SJT	**82.11**	100%	100%	100%	100%	100%	100%	100%	100%	98%	94%	83%	88%	68%	54%	41%	19%	19%		1%	6%	43%	53%	55%	93%	98%
ATL	**82.12**	100%	100%	100%	100%	100%	100%	100%	100%	98%	93%	83%	88%	67%	54%	41%	19%	20%	1%		5%	41%	51%	53%	92%	97%
LFK	**82.19**	100%	100%	100%	100%	100%	100%	100%	100%	99%	95%	85%	90%	72%	58%	46%	25%	25%	6%	5%		37%	48%	51%	92%	97%
ODA	**82.65**	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	93%	97%	89%	78%	70%	57%	58%	43%	41%	37%		18%	22%	84%	94%
BRY	**82.86**	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	94%	97%	91%	81%	74%	65%	66%	53%	51%	48%	18%		5%	68%	85%
BWD	**82.93**	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	94%	97%	91%	82%	75%	66%	67%	55%	53%	51%	22%	5%		61%	81%
SAT	**83.77**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	97%	96%	95%	96%	93%	92%	92%	84%	68%	61%		46%
TYL	**84.27**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	99%	98%	97%	97%	94%	85%	81%	46%	

Table 56: Level of confidence for significant difference for TxTAP scores for 2009

District		FTW	YKM	CRP	LFK	WFS	CHS	PAR	LBB	HOU	PHR	ATL	ELP	ABL	SAT	BWD	AUS	TYL	AMA	DAL	WAC	BMT	LRD	ODA	BRY	SJT
	Mean	**74.22**	**75.25**	**75.30**	**75.37**	**75.68**	**76.07**	**76.29**	**76.71**	**77.29**	**77.58**	**77.70**	**77.70**	**78.67**	**78.95**	**79.33**	**79.57**	**79.75**	**80.01**	**80.02**	**80.10**	**80.18**	**80.93**	**82.88**	**83.36**	**83.70**
FTW	**74.22**		70%	62%	76%	77%	87%	95%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
YKM	**75.25**	70%		4%	10%	28%	51%	69%	87%	92%	97%	99%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	**75.30**	62%	4%		5%	22%	42%	57%	75%	85%	92%	95%	93%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LFK	**75.37**	76%	10%	5%		21%	44%	64%	84%	90%	96%	98%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**75.68**	77%	28%	22%	21%		22%	37%	61%	76%	86%	90%	87%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CHS	**76.07**	87%	51%	42%	44%	22%		14%	41%	63%	76%	82%	78%	97%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**76.29**	95%	69%	57%	64%	37%	14%		32%	59%	75%	82%	77%	97%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LBB	**76.71**	99%	87%	75%	84%	61%	41%	32%		38%	58%	68%	62%	95%	98%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	**77.29**	99%	92%	85%	90%	76%	63%	59%	38%		18%	27%	25%	75%	86%	89%	92%	97%	98%	98%	98%	97%	99%	100%	100%	100%
PHR	**77.58**	100%	97%	92%	96%	86%	76%	75%	58%	18%		9%	8%	68%	81%	86%	90%	96%	98%	98%	98%	96%	98%	100%	100%	100%
ATL	**77.70**	100%	99%	95%	98%	90%	82%	82%	68%	27%	9%		0%	66%	81%	85%	90%	96%	98%	98%	98%	96%	98%	100%	100%	100%
ELP	**77.70**	100%	97%	93%	96%	87%	78%	77%	62%	25%	8%	0%		60%	75%	81%	86%	93%	96%	96%	96%	94%	97%	100%	100%	100%
ABL	**78.67**	100%	100%	99%	100%	99%	97%	97%	95%	75%	68%	66%	60%		23%	44%	57%	72%	83%	82%	84%	78%	90%	100%	100%	100%
SAT	**78.95**	100%	100%	100%	100%	99%	99%	99%	98%	86%	81%	81%	75%	23%		27%	43%	61%	76%	75%	77%	70%	86%	100%	100%	100%
BWD	**79.33**	100%	100%	100%	100%	99%	99%	99%	98%	89%	86%	85%	81%	44%	27%		16%	30%	48%	47%	51%	49%	73%	100%	100%	100%
AUS	**79.57**	100%	100%	100%	100%	100%	99%	100%	99%	92%	90%	90%	86%	57%	43%	16%		13%	31%	31%	36%	35%	65%	100%	100%	100%
TYL	**79.75**	100%	100%	100%	100%	100%	100%	100%	100%	97%	96%	96%	93%	72%	61%	30%	13%		22%	22%	28%	28%	62%	100%	100%	100%
AMA	**80.01**	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	98%	96%	83%	76%	48%	31%	22%		1%	8%	12%	52%	100%	100%	100%
DAL	**80.02**	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	98%	96%	82%	75%	47%	31%	22%	1%		7%	11%	50%	100%	100%	100%
WAC	**80.10**	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	98%	96%	84%	77%	51%	36%	28%	8%	7%		5%	46%	100%	100%	100%
BMT	**80.18**	100%	100%	100%	100%	100%	100%	100%	100%	97%	96%	96%	94%	78%	70%	49%	35%	28%	12%	11%	5%		38%	98%	99%	100%
LRD	**80.93**	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	97%	90%	86%	73%	65%	62%	52%	50%	46%	38%		86%	92%	96%
ODA	**82.88**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	86%		37%	60%
BRY	**83.36**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	92%	37%		26%
SJT	**83.70**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	96%	60%	26%	

Table 57: Level of confidence for significant difference for TxTAP scores for 2008

District		FTW	YKM	CRP	LFK	WFS	CHS	PAR	LBB	HOU	PHR	ATL	ELP	ABL	SAT	BWD	AUS	TYL	AMA	DAL	WAC	BMT	LRD	ODA	BRY	SJT
	Mean	**74.22**	**75.25**	**75.30**	**75.37**	**75.68**	**76.07**	**76.29**	**76.71**	**77.29**	**77.58**	**77.70**	**77.70**	**78.67**	**78.95**	**79.33**	**79.57**	**79.75**	**80.01**	**80.02**	**80.10**	**80.18**	**80.93**	**82.88**	**83.36**	**83.70**
FTW	**74.22**		70%	62%	76%	77%	87%	95%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
YKM	**75.25**	70%		4%	10%	28%	51%	69%	87%	92%	97%	99%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	**75.30**	62%	4%		5%	22%	42%	57%	75%	85%	92%	95%	93%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LFK	**75.37**	76%	10%	5%		21%	44%	64%	84%	90%	96%	98%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**75.68**	77%	28%	22%	21%		22%	37%	61%	76%	86%	90%	87%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CHS	**76.07**	87%	51%	42%	44%	22%		14%	41%	63%	76%	82%	78%	97%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**76.29**	95%	69%	57%	64%	37%	14%		32%	59%	75%	82%	77%	97%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LBB	**76.71**	99%	87%	75%	84%	61%	41%	32%		38%	58%	68%	62%	95%	98%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	**77.29**	99%	92%	85%	90%	76%	63%	59%	38%		18%	27%	25%	75%	86%	89%	92%	97%	98%	98%	98%	97%	99%	100%	100%	100%
PHR	**77.58**	100%	97%	92%	96%	86%	76%	75%	58%	18%		9%	8%	68%	81%	86%	90%	96%	98%	98%	98%	96%	98%	100%	100%	100%
ATL	**77.70**	100%	99%	95%	98%	90%	82%	82%	68%	27%	9%		0%	66%	81%	85%	90%	96%	98%	98%	98%	96%	98%	100%	100%	100%
ELP	**77.70**	100%	97%	93%	96%	87%	78%	77%	62%	25%	8%	0%		60%	75%	81%	86%	93%	96%	96%	96%	94%	97%	100%	100%	100%
ABL	**78.67**	100%	100%	99%	100%	99%	97%	97%	95%	75%	68%	66%	60%		23%	44%	57%	72%	83%	82%	84%	78%	90%	100%	100%	100%
SAT	**78.95**	100%	100%	100%	100%	99%	99%	99%	98%	86%	81%	81%	75%	23%		27%	43%	61%	76%	75%	77%	70%	86%	100%	100%	100%
BWD	**79.33**	100%	100%	100%	100%	99%	99%	99%	98%	89%	86%	85%	81%	44%	27%		16%	30%	48%	47%	51%	49%	73%	100%	100%	100%
AUS	**79.57**	100%	100%	100%	100%	100%	99%	100%	99%	92%	90%	90%	86%	57%	43%	16%		13%	31%	31%	36%	35%	65%	100%	100%	100%
TYL	**79.75**	100%	100%	100%	100%	100%	100%	100%	100%	97%	96%	96%	93%	72%	61%	30%	13%		22%	22%	28%	28%	62%	100%	100%	100%
AMA	**80.01**	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	98%	96%	83%	76%	48%	31%	22%		1%	8%	12%	52%	100%	100%	100%
DAL	**80.02**	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	98%	96%	82%	75%	47%	31%	22%	1%		7%	11%	50%	100%	100%	100%
WAC	**80.10**	100%	100%	100%	100%	100%	100%	100%	100%	98%	98%	98%	96%	84%	77%	51%	36%	28%	8%	7%		5%	46%	100%	100%	100%
BMT	**80.18**	100%	100%	100%	100%	100%	100%	100%	100%	97%	96%	96%	94%	78%	70%	49%	35%	28%	12%	11%	5%		38%	98%	99%	100%
LRD	**80.93**	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	97%	90%	86%	73%	65%	62%	52%	50%	46%	38%		86%	92%	96%
ODA	**82.88**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	86%		37%	60%
BRY	**83.36**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	92%	37%		26%
SJT	**83.70**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	96%	60%	26%	

Table 58: Level of confidence for significant difference for TxTAP scores for 2008, 2009, 2010

District		HOU	CHS	CRP	WFS	PAR	FTW	LBB	PHR	ABL	ELP	DAL	SAT	YKM	AUS	BMT	LFK	BWD	ATL	LRD	AMA	WAC	SJT	ODA	TYL	BRY
	Mean	**73.66**	**75.16**	**75.60**	**76.23**	**76.71**	**77.00**	**77.80**	**78.87**	**78.95**	**79.03**	**79.21**	**79.32**	**79.45**	**79.58**	**79.68**	**79.90**	**80.15**	**80.37**	**80.81**	**81.10**	**81.46**	**82.74**	**82.81**	**82.99**	**83.53**
HOU	**73.66**		92%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CHS	**75.16**	92%		40%	78%	95%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	**75.60**	99%	40%		56%	88%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**76.23**	100%	78%	56%		48%	69%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**76.71**	100%	95%	88%	48%		34%	92%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**77.00**	100%	98%	95%	69%	34%		79%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LBB	**77.80**	100%	100%	100%	97%	92%	79%		87%	94%	90%	97%	99%	99%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	**78.87**	100%	100%	100%	100%	100%	99%	87%		9%	15%	35%	47%	56%	64%	66%	84%	90%	96%	98%	100%	100%	100%	100%	100%	100%
ABL	**78.95**	100%	100%	100%	100%	100%	100%	94%	9%		8%	30%	44%	56%	64%	65%	86%	92%	97%	98%	100%	100%	100%	100%	100%	100%
ELP	**79.03**	100%	100%	100%	100%	100%	99%	90%	15%	8%		18%	29%	41%	50%	53%	74%	83%	91%	96%	99%	100%	100%	100%	100%	100%
DAL	**79.21**	100%	100%	100%	100%	100%	100%	97%	35%	30%	18%		14%	28%	40%	45%	71%	82%	92%	96%	100%	100%	100%	100%	100%	100%
SAT	**79.32**	100%	100%	100%	100%	100%	100%	99%	47%	44%	29%	14%		17%	31%	37%	65%	79%	90%	95%	100%	100%	100%	100%	100%	100%
YKM	**79.45**	100%	100%	100%	100%	100%	100%	99%	56%	56%	41%	28%	17%		15%	23%	51%	69%	83%	92%	99%	100%	100%	100%	100%	100%
AUS	**79.58**	100%	100%	100%	100%	100%	100%	99%	64%	64%	50%	40%	31%	15%		10%	36%	57%	74%	88%	98%	99%	100%	100%	100%	100%
BMT	**79.68**	100%	100%	100%	100%	100%	100%	99%	66%	65%	53%	45%	37%	23%	10%		22%	44%	62%	80%	94%	98%	100%	100%	100%	100%
LFK	**79.90**	100%	100%	100%	100%	100%	100%	100%	84%	86%	74%	71%	65%	51%	36%	22%		28%	52%	76%	94%	98%	100%	100%	100%	100%
BWD	**80.15**	100%	100%	100%	100%	100%	100%	100%	90%	92%	83%	82%	79%	69%	57%	44%	28%		24%	58%	84%	94%	100%	100%	100%	100%
ATL	**80.37**	100%	100%	100%	100%	100%	100%	100%	96%	97%	91%	92%	90%	83%	74%	62%	52%	24%		43%	75%	90%	100%	100%	100%	100%
LRD	**80.81**	100%	100%	100%	100%	100%	100%	100%	98%	98%	96%	96%	95%	92%	88%	80%	76%	58%	43%		30%	60%	99%	99%	100%	100%
AMA	**81.10**	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	99%	98%	94%	94%	84%	75%	30%		44%	99%	100%	100%	100%
WAC	**81.46**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	94%	90%	60%	44%		96%	97%	99%	100%
SJT	**82.74**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	96%		9%	33%	81%
ODA	**82.81**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	97%	9%		24%	76%
TYL	**82.99**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	33%	24%		64%
BRY	**83.53**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	81%	76%	64%	

Table 59: Level of confidence for significant difference for TxMAP scores for 2010

District		WFS	PHR	PAR	ABL	LFK	HOU	FTW	CHS	WAC	DAL	SJT	TYL	ODA	YKM	SAT	BMT	LBB	ELP	AUS	ATL	BWD	CRP	BRY	LRD	AMA
	Mean	**77.06**	**77.30**	**77.58**	**77.63**	**78.24**	**78.30**	**78.35**	**78.83**	**78.96**	**79.04**	**80.26**	**80.28**	**80.33**	**80.41**	**80.61**	**80.66**	**80.80**	**80.83**	**80.91**	**81.23**	**81.29**	**81.67**	**82.09**	**82.11**	**82.77**
WFS	**77.06**		20%	48%	60%	88%	89%	90%	98%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	**77.30**	20%		22%	29%	68%	70%	72%	90%	92%	93%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**77.58**	48%	22%		6%	60%	62%	65%	89%	93%	93%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ABL	**77.63**	60%	29%	6%		65%	67%	70%	94%	96%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LFK	**78.24**	88%	68%	60%	65%		6%	11%	59%	68%	71%	100%	99%	100%	100%	100%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%
HOU	**78.30**	89%	70%	62%	67%	6%		5%	52%	62%	66%	99%	99%	99%	100%	100%	98%	100%	99%	100%	100%	100%	100%	100%	100%	100%
FTW	**78.35**	90%	72%	65%	70%	11%	5%		48%	58%	62%	99%	99%	99%	99%	100%	98%	100%	99%	100%	100%	100%	100%	100%	100%	100%
CHS	**78.83**	98%	90%	89%	94%	59%	52%	48%		15%	23%	96%	96%	97%	98%	99%	95%	100%	97%	99%	100%	100%	100%	100%	100%	100%
WAC	**78.96**	99%	92%	93%	96%	68%	62%	58%	15%		9%	93%	93%	95%	96%	99%	93%	100%	95%	99%	100%	100%	100%	100%	100%	100%
DAL	**79.04**	99%	93%	93%	96%	71%	66%	62%	23%	9%		90%	90%	92%	94%	97%	90%	99%	93%	98%	99%	100%	100%	100%	100%	100%
SJT	**80.26**	100%	100%	100%	100%	100%	99%	99%	96%	93%	90%		3%	8%	18%	41%	34%	61%	46%	60%	81%	83%	94%	99%	99%	100%
TYL	**80.28**	100%	100%	100%	100%	99%	99%	99%	96%	93%	90%	3%		5%	14%	37%	31%	57%	43%	57%	79%	81%	93%	99%	98%	100%
ODA	**80.33**	100%	100%	100%	100%	100%	99%	99%	97%	95%	92%	8%	5%		10%	34%	28%	54%	41%	55%	78%	80%	93%	99%	98%	100%
YKM	**80.41**	100%	100%	100%	100%	100%	100%	99%	98%	96%	94%	18%	14%	10%		24%	21%	46%	34%	48%	73%	76%	91%	99%	98%	100%
SAT	**80.61**	100%	100%	100%	100%	100%	100%	100%	99%	99%	97%	41%	37%	34%	24%		5%	25%	19%	32%	63%	66%	87%	98%	96%	100%
BMT	**80.66**	100%	100%	100%	100%	99%	98%	98%	95%	93%	90%	34%	31%	28%	21%	5%		12%	11%	19%	44%	48%	70%	88%	86%	98%
LBB	**80.80**	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	61%	57%	54%	46%	25%	12%		3%	12%	47%	52%	80%	97%	94%	100%
ELP	**80.83**	100%	100%	100%	100%	99%	99%	99%	97%	95%	93%	46%	43%	41%	34%	19%	11%	3%		7%	32%	36%	62%	83%	81%	96%
AUS	**80.91**	100%	100%	100%	100%	100%	100%	100%	99%	99%	98%	60%	57%	55%	48%	32%	19%	12%	7%		30%	35%	65%	88%	85%	99%
ATL	**81.23**	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	81%	79%	78%	73%	63%	44%	47%	32%	30%		6%	43%	78%	73%	97%
BWD	**81.29**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	83%	81%	80%	76%	66%	48%	52%	36%	35%	6%		37%	73%	69%	96%
CRP	**81.67**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94%	93%	93%	91%	87%	70%	80%	62%	65%	43%	37%		44%	42%	87%
BRY	**82.09**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%	99%	98%	88%	97%	83%	88%	78%	73%	44%		2%	71%
LRD	**82.11**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	98%	98%	96%	86%	94%	81%	85%	73%	69%	42%	2%		63%
AMA	**82.77**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	100%	96%	99%	97%	96%	87%	71%	63%	

Table 60: Level of confidence for significant difference for TxMAP scores for 2009

District		LFK	ATL	WFS	FTW	YKM	TYL	PAR	SAT	AUS	PHR	BMT	CRP	DAL	AMA	CHS	ABL	HOU	LBB	WAC	LRD	BWD	ELP	BRY	SJT	ODA
	Mean	**73.19**	**74.60**	**75.05**	**76.58**	**76.61**	**76.83**	**77.00**	**77.65**	**77.91**	**77.93**	**78.89**	**79.34**	**79.52**	**79.86**	**80.02**	**80.12**	**80.16**	**80.16**	**80.22**	**80.47**	**80.68**	**81.56**	**82.13**	**83.21**	**83.29**
LFK	**73.19**		94%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
ATL	**74.60**	94%		41%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**75.05**	97%	41%		92%	94%	97%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**76.58**	100%	99%	92%		4%	25%	41%	85%	88%	89%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
YKM	**76.61**	100%	99%	94%	4%		23%	40%	85%	88%	89%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
TYL	**76.83**	100%	100%	97%	25%	23%		19%	75%	81%	82%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**77.00**	100%	100%	98%	41%	40%	19%		65%	73%	75%	97%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
SAT	**77.65**	100%	100%	100%	85%	85%	75%	65%		25%	27%	86%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
AUS	**77.91**	100%	100%	100%	88%	88%	81%	73%	25%		2%	70%	91%	95%	99%	99%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	**77.93**	100%	100%	100%	89%	89%	82%	75%	27%	2%		69%	90%	95%	99%	99%	100%	99%	100%	99%	100%	100%	100%	100%	100%	100%
BMT	**78.89**	100%	100%	100%	99%	99%	98%	97%	86%	70%	69%		39%	54%	76%	81%	86%	85%	89%	88%	93%	96%	99%	100%	100%	100%
CRP	**79.34**	100%	100%	100%	100%	100%	100%	100%	98%	91%	90%	39%		19%	53%	62%	72%	70%	77%	75%	85%	93%	99%	100%	100%	100%
DAL	**79.52**	100%	100%	100%	100%	100%	100%	100%	99%	95%	95%	54%	19%		39%	51%	63%	61%	69%	68%	81%	90%	98%	100%	100%	100%
AMA	**79.86**	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	76%	53%	39%		17%	31%	31%	37%	39%	61%	77%	96%	100%	100%	100%
CHS	**80.02**	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	81%	62%	51%	17%		12%	15%	17%	22%	46%	64%	92%	100%	100%	100%
ABL	**80.12**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	86%	72%	63%	31%	12%		5%	6%	12%	39%	60%	92%	100%	100%	100%
HOU	**80.16**	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	85%	70%	61%	31%	15%	5%			6%	32%	51%	88%	99%	100%	100%
LBB	**80.16**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	89%	77%	69%	37%	17%	6%			8%	37%	59%	92%	100%	100%	100%
WAC	**80.22**	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	88%	75%	68%	39%	22%	12%	6%	8%		27%	48%	88%	100%	100%	100%
LRD	**80.47**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	93%	85%	81%	61%	46%	39%	32%	37%	27%		22%	79%	98%	100%	100%
BWD	**80.68**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	96%	93%	90%	77%	64%	60%	51%	59%	48%	22%		70%	97%	100%	100%
ELP	**81.56**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	98%	96%	92%	92%	88%	92%	88%	79%	70%		50%	96%	94%
BRY	**82.13**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	98%	97%	50%		93%	88%
SJT	**83.21**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	96%	93%		9%
ODA	**83.29**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94%	88%	9%	

Table 61: Level of confidence for significant difference for TxMAP scores for 2008

District		HOU	PAR	CRP	PHR	LFK	FTW	TYL	LRD	SAT	WFS	DAL	BWD	WAC	AUS	LBB	YKM	BRY	ODA	SJT	BMT	AMA	ELP	CHS	ABL	ATL
	Mean	**74.25**	**76.06**	**76.54**	**77.16**	**78.87**	**79.07**	**79.13**	**79.18**	**79.55**	**79.55**	**80.14**	**80.37**	**81.04**	**81.07**	**82.24**	**82.28**	**82.85**	**82.97**	**83.11**	**83.38**	**84.65**	**85.89**	**86.33**	**86.65**	**86.71**
HOU	**74.25**		91%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**76.06**	91%		40%	74%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	**76.54**	98%	40%		50%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	**77.16**	99%	74%	50%		94%	95%	98%	96%	97%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LFK	**78.87**	100%	100%	99%	94%		17%	25%	27%	49%	51%	79%	91%	99%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**79.07**	100%	100%	99%	95%	17%		5%	9%	34%	35%	68%	82%	97%	96%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
TYL	**79.13**	100%	100%	100%	98%	25%	5%		5%	33%	35%	71%	86%	99%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
LRD	**79.18**	100%	100%	100%	96%	27%	9%	5%		26%	28%	63%	79%	96%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
SAT	**79.55**	100%	100%	100%	97%	49%	34%	33%	26%			39%	56%	86%	84%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**79.55**	100%	100%	100%	98%	51%	35%	35%	28%			41%	58%	88%	86%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	**80.14**	100%	100%	100%	99%	79%	68%	71%	63%	39%	41%		17%	64%	62%	97%	97%	99%	99%	100%	99%	100%	100%	100%	100%	100%
BWD	**80.37**	100%	100%	100%	100%	91%	82%	86%	79%	56%	58%	17%		56%	54%	97%	98%	100%	99%	100%	99%	100%	100%	100%	100%	100%
WAC	**81.04**	100%	100%	100%	100%	99%	97%	99%	96%	86%	88%	64%	56%		3%	87%	89%	98%	98%	100%	96%	100%	100%	100%	100%	100%
AUS	**81.07**	100%	100%	100%	100%	98%	96%	98%	95%	84%	86%	62%	54%	3%		82%	84%	96%	96%	99%	94%	100%	100%	100%	100%	100%
LBB	**82.24**	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	97%	97%	87%	82%		4%	55%	60%	76%	67%	100%	100%	100%	100%	100%
YKM	**82.28**	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	97%	98%	89%	84%	4%		54%	59%	75%	66%	100%	100%	100%	100%	100%
BRY	**82.85**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	98%	96%	55%	54%		12%	28%	36%	98%	100%	100%	100%	100%
ODA	**82.97**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	98%	96%	60%	59%	12%		14%	26%	96%	99%	100%	100%	100%
SJT	**83.11**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	76%	75%	28%	14%		19%	97%	100%	100%	100%	100%
BMT	**83.38**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	96%	94%	67%	66%	36%	26%	19%		74%	95%	97%	99%	99%
AMA	**84.65**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	96%	97%	74%		81%	89%	99%	97%
ELP	**85.89**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	95%	81%		28%	55%	53%
CHS	**86.33**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97%	89%	28%		23%	25%
ABL	**86.65**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	55%	23%		5%
ATL	**86.71**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	97%	53%	25%	5%	

Table 62 : Level of confidence for significant difference for TxMAP scores for 2008, 2009, 2010 combined

District		LFK	PAR	WFS	PHR	HOU	FTW	TYL	CRP	SAT	DAL	YKM	AUS	WAC	ATL	LRD	BWD	BMT	LBB	ABL	CHS	ODA	SJT	BRY	AMA	ELP
	Mean	**76.75**	**77.03**	**77.20**	**77.49**	**77.57**	**77.99**	**78.71**	**79.22**	**79.25**	**79.56**	**79.72**	**79.89**	**80.03**	**80.60**	**80.62**	**80.78**	**81.00**	**81.07**	**81.32**	**81.75**	**82.21**	**82.21**	**82.36**	**82.40**	**82.72**
LFK	**76.75**		45%	61%	83%	88%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PAR	**77.03**	45%		26%	62%	71%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
WFS	**77.20**	61%	26%		39%	49%	86%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
PHR	**77.49**	83%	62%	39%		12%	64%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
HOU	**77.57**	88%	71%	49%	12%		57%	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
FTW	**77.99**	99%	95%	86%	64%	57%		87%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
TYL	**78.71**	100%	100%	100%	98%	98%	87%		73%	76%	93%	98%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CRP	**79.22**	100%	100%	100%	100%	100%	99%	73%		5%	51%	72%	81%	93%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
SAT	**79.25**	100%	100%	100%	100%	100%	99%	76%	5%		47%	69%	79%	91%	99%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
DAL	**79.56**	100%	100%	100%	100%	100%	100%	93%	51%	47%		27%	48%	69%	93%	96%	99%	98%	100%	100%	100%	100%	100%	100%	100%	100%
YKM	**79.72**	100%	100%	100%	100%	100%	100%	98%	72%	69%	27%		27%	52%	90%	94%	98%	97%	100%	100%	100%	100%	100%	100%	100%	100%
AUS	**79.89**	100%	100%	100%	100%	100%	100%	99%	81%	79%	48%	27%		24%	78%	84%	92%	93%	99%	100%	100%	100%	100%	100%	100%	100%
WAC	**80.03**	100%	100%	100%	100%	100%	100%	100%	93%	91%	69%	52%	24%		71%	79%	90%	90%	99%	100%	100%	100%	100%	100%	100%	100%
ATL	**80.60**	100%	100%	100%	100%	100%	100%	100%	99%	99%	93%	90%	78%	71%		3%	26%	46%	64%	82%	94%	100%	100%	100%	100%	100%
LRD	**80.62**	100%	100%	100%	100%	100%	100%	100%	100%	99%	96%	94%	84%	79%	3%		26%	47%	69%	86%	96%	100%	100%	100%	100%	100%
BWD	**80.78**	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	98%	92%	90%	26%	26%		29%	50%	76%	93%	100%	100%	100%	100%	100%
BMT	**81.00**	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	97%	93%	90%	46%	47%	29%		9%	41%	75%	95%	97%	98%	98%	99%
LBB	**81.07**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	64%	69%	50%	9%		46%	83%	99%	100%	100%	100%	100%
ABL	**81.32**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	82%	86%	76%	41%	46%		58%	94%	97%	98%	99%	99%
CHS	**81.75**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94%	96%	93%	75%	83%	58%		60%	64%	77%	79%	88%
ODA	**82.21**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	95%	99%	94%	60%		1%	27%	33%	62%
SJT	**82.21**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97%	100%	97%	64%	1%		30%	36%	66%
BRY	**82.36**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	100%	98%	77%	27%	30%		7%	49%
AMA	**82.40**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98%	100%	99%	79%	33%	36%	7%		44%
ELP	**82.72**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	100%	99%	88%	62%	66%	49%	44%	

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Vita

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